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# Criteria for Municipal Solid Waste Landfills (40 CFR Part 258). Subtitle D of Resource Conservation and Recovery Act (RCRA). Updated Review of Selected Provisions of State Solid Waste Regulations

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In August 1988, the U.S. Environmental Protection Agency proposed Solid Waste Disposal Facilities Criteria (40 CFR Part 258) for municipal solid waste landfills. This background document is the basis for the development of a portion of the Subtitle D criteria.

This document presents a review of selected provisions of State solid waste regulations. This document analyzes the differences between the proposed criteria and current State and Territorial solid waste regulations. The three specific criteria analyzed for in this document include 1) facility design (liners, leachate collection systems, and final covers), 2) ground-water monitoring, and 3) corrective action. The three aspects were compared to State regulations to determine whether the State had standards addressing these three areas; whether the State requirements are equivalent; or whether the State has the regulatory ground work that would allow the implementation or the development of the criteria.

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# DRAFT
# BACKGROUND DOCUMENT

# UPDATED REVIEW OF SELECTED PROVISIONS OF STATE SOLID WASTE REGULATIONS

## "CRITERIA FOR MUNICIPAL SOLID WASTE LANDFILLS"
## (40 CFR PART 258)

## SUBTITLE D OF RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)

U.S. ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF SOLID WASTE

JULY 1988

REPRODUCED BY
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## TABLE OF CONTENTS

**SECTION** **PAGE**

I. INTRODUCTION 1

II. CURRENT CRITERIA (40 CFR PART 257) 2

III. PROPOSED CRITERIA (40 CFR PART 258) 2

IV. STATE AND TERRITORY REQUIREMENTS 2

  A. Liner Requirements 3

  B. Leachate Collections System Requirements 3

  C. Final Cover Requirements 7

  D. Ground-Water Monitoring Requirements 8

  E. Corrective Action Requirements 8

V. CONCLUSION 9

APPENDIX A. State Solid Waste Regulation Summary Tables A-1

DOCUMENT IS COMPLETE AS PAGINATED BY SOURCE.

# I. INTRODUCTION

The 1984 Hazardous and Solid Waste Amendments (HSWA) to the Resource Conservation and Recovery Act (RCRA) directed EPA to revise the "Criteria for Classification of Solid Waste Disposal Facilities and Practices" (40 CFR Part 257) for facilities that may receive household hazardous waste (HHW) or hazardous waste from small quantity generators (SQGs). Such revisions shall be those necessary to protect human health and the environment and may take into account the "practicable capability" of facilities to implement the criteria. At a minimum, the revisions should require ground-water monitoring as necessary to detect contamination, establish location standards for new or existing facilities, and provide for corrective action as appropriate.

In carrying out this mandate, EPA has undertaken efforts to revise the current criteria. EPA is initially limiting the criteria revisions to municipal solid waste landfills (MSWLFs) because these are the only facilities for which the Agency has complete and reliable data.

In developing the criteria, EPA reviewed the current State and territorial solid waste regulations to identify the difference between the proposed criteria and current State regulations. The purpose of this document is to provide an analysis of those differences.

Three aspects of the criteria have been compared to State regulations to determine whether the States have standards addressing these areas; whether the State requirements are equivalent to the criteria; or whether the State has the regulatory ground work that would allow the implementation or development of requirements similar to the criteria. The three aspects of the criteria analyzed for this document include requirements for: facility design (i.e., liners, leachate collection systems (LCSs), and final cover); ground-water monitoring; and corrective action.

Appendix A of this document contains summary tables of the State and territorial regulations reviewed for this analysis.

## II. CURRENT CRITERIA (40 CFR PART 257)

The current 40 CFR Part 257 Criteria do not specify any requirements specific to facility design (i.e., liners, LCSs, final cover). The current criteria only states that, "a facility or practice shall not contaminate an underground drinking water source beyond the solid waste boundary or beyond an alternative boundary." Furthermore, the current criteria do not specifically require any ground-water monitoring or corrective action if the underground drinking water source is contaminated. However, requirements specifying MSWLF design, ground-water monitoring, and corrective action have been incorporated into the revised criteria (Part 258) and are discussed in the next section.

## III. REVISED CRITERIA (40 CFR PART 258)

The revised criteria require all owners or operators of new MSWLF units, including lateral expansions of existing units, to design the units with liners, LCSs, and final covers, as necessary, to ensure that health-based limits (defined as design goal) are met in the aquifer at the waste management unit boundary or an alternative boundary. Owners or operators of existing MSWLF units must equip the units at closure with a final cover system that prevents infiltration of water into the waste.

In addition, the revised criteria require all owners or operators of new and existing MSWLF units to implement a ground-water monitoring program and to implement a corrective action program when and if the ground-water protection standard is exceeded.

## IV. STATE AND TERRITORY REQUIREMENTS

As discussed earlier, a review of current State and territory solid waste regulations was conducted to compare the revised criteria to the current State and territorial criteria for MSWLFs. The following sections provide brief discussions on the numbers of States and territories that have requirements for facility design (i.e., liners, LCSs, and final cover), ground-water monitoring and corrective action. Table 1 provides an overview of these requirements and Appendix A provides a more detailed description of the State and territorial requirements.

## TABLE 1. STATE SOLID WASTE REGULATION REVIEW

| STATE | LINERS | | | L C S | | | FINAL COVER | | | G W M | | | C A | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NS | PS | D S | NS | PS | D S | NS | PS | D S | NS | PS | D S | NS | PS |
| 1. Alabama | | | X | | X | | | | X | | X | | X | |
| 2. Alaska | X | | | X | | | | | X | X* | | | X* | |
| 3. Arizona | X | | | X | | | | | X | X* | | | X* | |
| 4. Arkansas | | X | | | X | | | | X | X* | | | X | |
| 5. California | | | X | | X | | | | X | | | X | | X |
| 6. Colorado | X* | | | X* | | | | | X | | X | | X* | |
| 7. Connecticut | X* | | | X* | | | | | X | | X | | | X |
| 8. Delaware | | X | | | X | | | | X | | X | | X* | |
| 9. Florida | | X | X | | X | X | | X | | | X | | X | |
| 10. Georgia | X* | | | X* | | | | | X | X* | | | X* | |
| 11. Hawaii | X | | | X | | | | | X | | X | | X | |
| 12. Idaho | X* | | | | X | | | | X | | X | | X* | |
| 13. Illinois | X | | | X* | | | | X | | X | | | X | |
| 14. Indiana | | | X | | | X | | | X | | X | | | X |
| 15. Iowa | | X | | | X | | | | X | | X | | X* | |
| 16. Kansas | X* | | | X* | | | X* | | | | X | | X | |
| 17. Kentucky | | | X | | X | | | | X | | | X | | X |
| 18. Louisiana | | | X | X | | | | | X | | X | | X* | |
| 19. Maine | | X | | | X | | | | X | | X | | X | |
| 20. Maryland | | | X | | X | | | | X | | X | | | X |

NS = no standard
PS = performance standard
DS = design standard
* = possibly in guidance based on 1984 Subtitle D State Census

### TABLE 1. STATE SOLID WASTE REGULATION REVIEW (Cont.)

| STATE | LINERS | | | L C S | | | FINAL COVER | | | G W M | | | C A | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NS | PS | D S | NS | PS | D S | NS | PS | D S | NS | PS | D S | NS | PS |
| 21. Massachusetts | X* | | | X* | | | | | X | X* | | | X* | |
| 22. Michigan | | | X | | | X | | | X | | | X | | X |
| 23. Minnesota | | | X | | | X | | | X | | | X | X | |
| 24. Mississippi | | X | | X* | | | | | X | | X | | X* | |
| 25. Missouri | | | X | | | X | | | X | | X | | X | |
| 26. Montana | X* | | | X* | | | | | X | | X | | X* | |
| 27. Nebraska | X* | | | | X | | | | X | | X | | | X |
| 28. Nevada | X | | | X | | | | | X | X* | | | X* | |
| 29. New Hamp. | X* | | | X* | | | | | X | | X | | X | |
| 30. New Jersey | X | | | | X | | | X | | | X | | X | |
| 31. New Mexico | X | | | X | | | | | X | X | | | X | |
| 32. New York | | | X | | X | | | | X | | X | | X | |
| 33. N. Carolina | X* | | | | X | | | | X | | X | | | X |
| 34. N. Dakota | X* | | | | X | | | | X | | X | | X* | |
| 35. Ohio | X* | | | | X | | | | X | | X | | | X |
| 36. Oklahoma | | | X | | X | | | | X | | X | | X | |
| 37. Oregon | X* | | | | X | | | | X | | X | | | X |
| 38. Pennsylvania | | | X | | | X* | | | X | | X | | X* | |
| 39. Rhode Island | X | | | X | | | | | X | | X | | | X |

NS = no standard
PS = performance standard
DS = design standard
* = possibly in guidance based on 1984 Subtitle D State Census

## TABLE1. STATE SOLID WASTE REGULATION REVIEW (Cont.)

| STATE | LINERS | | | LCS | | | FINAL COVER | | | GWM | | | CA | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NS | PS | DS | NS | PS | DS | NS | PS | DS | NS | PS | DS | NS | PS |
| 40. S. Carolina | | X | | X | | | | | X | | X | | X | |
| 41. S. Dakota | X | | | X | | | | | X | X* | | | X* | |
| 42. Tennessee | X* | | | X* | | | | | X | X | | | | X |
| 43. Texas | | | X | X | | | | | X | | X | | | X |
| 44. Utah | | | X | X | | | | | X | X | | | X | |
| 45. Vermont | X | | | X* | | | | | X | | X | | X | |
| 46. Virginia | X* | | | X* | | | | | X | X* | | | X* | |
| 47. Washington | | X | | | X | | | | X | X | | | X* | |
| 48. W. Virginia | X* | | | X* | | | X* | | | X* | | | X | |
| 49. Wisconsin | | X | | X* | | | | | X | | X | | X | |
| 50. Wyoming | X* | | | X* | | | | | X | | X | | X | |
| 51. American Samoa | X | | | X | | | X | | | X | | | X* | |
| 52. Guam | X* | | | | X | | | | X | | X | | X | |
| 53. Northern Marianas | X | | | | X | | X | | | X | | | X | |
| 54. Puerto Rico | X* | | | X | | | X* | | | | X | | | X |
| 55. Virgin Islands | X | | | X | | | X | | | X | | | X | |
| Totals | 32 | 9 | 15 | 29 | 21 | 6 | 6 | 3 | 46 | 17 | 34 | 4 | 41 | 14 |
| | 19* | | | 15* | | | 3* | | | 9* | | | 18* | |

NS = no standard
PS = performance standard
DS = design standard
* = possibly in guidance based on 1984 Subtitle D State Census

## A. Liner Requirements

Approximately 58% (32) of the States and territories do not require liners by regulation. However, more than half (19) of these States have developed guidances that may include specifications for a liner. (Note: The guidances were not reviewed for this analysis.) Sixteen percent (9) of the States and territories have regulatory performance standards for liners in regulation. These performance standards include requirements that provide general overall performance standards to protect surface or ground water from contamination or contact with disposed solid waste. For example, South Carolina regulations specify that "provisions to prevent leachate from entering ground water and/or surface water" are required at landfills.

Twenty-seven percent (15) of the States and territories have established design standards for liners in their regulations. For example, the State of New York requires a natural or artificial liner that restricts infiltration equivalent to five feet of soil at a hydraulic conductivity of $10^{-5}$ cm/sec or less. The State of Texas requires a water balance method to determine the need for a liner that takes into account rainfall, evapotranspiration and soils data and if a liner is required, it must be at least 3 feet of soil having a maximum coefficient permeability of $1 \times 10^{-7}$ cm/sec or an alternative that has been approved by the department, including a synthetic liner.

As determined from the above, 43 States (78%) have established basic ground work either through guidance, regulation, or performance standards the implementation or development of requirements similar to the revised design criteria as they related to liners.

## B. Leachate Collection System Requirements

Approximately 53% (29) of the States and territories do not require LCSs by regulation. However, almost half of these States and territories (15) have guidances that may contain specifications for LCS. (Note: The guidances were not reviewed for this analysis.)

Thirty-eight percent (21) of the States and territories have performance standards for LCSs in their regulations. The majority of these jurisdictions (19 out of the 21) require a LCS either in all cases or as determined by site-specific conditions. However, these requirements do not establish any design or operating standards. Six states (about 1%) have established specific design criteria for LCSs in their regulations. The State of Florida has both design and performance standards for LCS and requires LCSs at all MSWLFs.

In general, as discussed above, 41 States and territories (75%) have established basic ground work, either through guidance, regulation or performance standards for the implementation or development of requirements similar to the revised design criteria as they relate to LCSs.

## C. Final Cover Requirements

Only two States and four territories (1% of total) do not require final cover within their regulations. However, the two States and one of the territories have guidances that may contain specifications for final cover. In addition, only three State regulations contain performance standards for final cover. Two of these specify that a final cover material must be used but do not provide any performance or design standards, for example depth of final cover. The State of Florida has a performance standard for final cover that specifies final cover to "be designed to minimize infiltration" and requires water balance calculations to determine infiltration.

The majority of the State regulations (46, 84%) contain specific design standards for final cover. Forty-one of the 46 regulations require, at a minimum, two feet of final cover material.

A total of 52 States and territories (95%) have established either through guidance, regulation, or performance standards, the basic ground work for implementation of requirements similar to the revised design criteria as they relate to final cover.

## D. Ground-Water Monitoring Requirements

Seventeen (31%) of the State and territory regulations do not require ground-water monitoring. However, nine of the 17 States have guidances that may specify ground-water monitoring for MSWLFs. Thirty-four State regulations (about 62%) contain performance standards that require ground-water monitoring at either all sites or may require ground-water monitoring based on site-specific conditions.

Four State regulations (about 7%) contain design standards for ground-water monitoring systems. Only the State of California has ground-water monitoring requirements that can be considered comparable to the proposed criteria.

In general, 47 (85%) of the States and territories have established either through guidance, performance standard or regulation, the ground work necessary for implementing or developing ground-water monitoring requirements similar to those in the revised criteria.

## E. Corrective Action Requirements

Seventy-five percent (41) of the State and territory regulations do not have a corrective action requirement, though almost half of these States (18) have developed guidances that may include corrective action measures. Approximately 25% (14) of the States and territories have regulations relating to corrective action. The State of California is the only State with corrective action requirements that can be considered equivalent or comparable to the revised rule because California requires the implementation of a corrective action plan when and if the ground water protection standard is exceeded. The corrective action requirements for California are very similar to Subtitle C requirements.

In general, more than half (32, 58%) of the States and territories have established either through guidance or regulations, the ground work for corrective action requirements similar to the revised criteria.

## V. CONCLUSION

It can be determined from this analysis that the majority of the States and territories have established either through regulation or guidance, MSWLF requirements for facility design, ground-water monitoring and corrective action that would provide a basic ground work for the implementation or development of requirements equivalent to the revised criteria. It can be assumed, therefore, that these State solid waste programs will not be severly impacted by the revised criteria.

# APPENDIX A

## STATE SOLID WASTE REGULATION SUMMARY TABLES

**STATE:** Arkansas
**Date of Regulation:** March '84

**Overall Standard:** Maintain a safe vertical distance between deposited refuse and the maximum seasonal water table elevation and shall include such measures necessary to prevent contamination of GW.

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | Maintain a safe vertical distance between deposited refuse and the maximum seasonal water table elevation and shall include such measures necessary to prevent contamination of GW. | Performance Standard |
| LEACHATE COLLECTION SYSTEM | ● LCS and leachate testing and monitoring system "shall be used where necessary to protect ground and surface waters." | Performance Standard |
| FINAL COVER | ● Grades and provide drainage facilities to prevent erosion, washing, collection of standing water.<br>● Seed as soon as weather permits. Adequate vegetative cover to prevent erosion.<br>● Cover must be free of pesticides and large objects<br>● Compacted layer, min. 2 ft, capable of supporting vegetation, before 60 days from final fill. | Design Standard/ Unknown if Comparable |
| GROUNDWATER MONITORING | No requirement. | No standard |
| CORRECTIVE ACTION | No requirement. | No standard |

**STATE:** Connecticut
**Date of Regulation:** February '85

**Overall Standard:** None stated.

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | A minimum of sixty (60) inches shall be maintained between the base of deposited solid wastes and the maximum high water table or bedrock unless otherwise authorized. | No standard |
| LEACHATE COLLECTION SYSTEM | None | No standard |
| FINAL COVER | ● Min. 2 ft (compacted) placed not less than 1 week after final filling<br>● Vegetation planted in next planting season | Design Standard/ Unknown if Comparable |
| GROUNDWATER MONITORING | ● May not degrade GW/SW quality beyond classification of waters law [various regulations]<br>● GWMS required "constructed and located as specified in the approved facility plan" | Performance Standard |
| CORRECTIVE ACTION | ● Upon degradation or threat to GW/SW from operating or closed LF, Owner/Operator must: Investigate extent and degree of contamination, submit construction and installation plans for G/S WMS to Commissioner for approval, installation aforementioned after approval. | Performance Standard |

**STATE:** Florida
**Date of Regulation:** December '85

**Overall Standard:** None Stated.

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | ● All Class I & II landfills must have a liner<br>● Performance Standard - 1) constructed of materials of appropriate chemical properties and sufficient strength and thickness to prevent failure; 2) installed upon a base or hydrogeological setting providing support; 3) covers all surrounding earth from contact w/waste.<br>● Design Standard<br>- Soil liners - minimum of 3 ft. of soil w/ in-place hydraulic conductivity not greater than 1 x $10^{-7}$ cm/sec and sat. hyd. shall not be increased above 1 x $10^{-7}$ cm/sec as a result of contact w/ leachate.<br>- Synthetic liners - at least a reinforced 30-mil membrane or a 60-mil reinforced membrane and underlined w/ bedded soil mat. and minimum 24 inches of soil layer above liner<br>- Other liner materials may be used as approved | Performance Standard and Design Standard/ Unknown if Comparable |
| LEACHATE COLLECTION SYSTEM | LCS impaced immediately above liner. Depth of leachate on top of liner shall not exceed one foot depth of leachate. Specific design and performance standards are listed in regulation. | Performance Standard and Design Standard/Equal or Comparable |
| FINAL COVER | ● Final cover must be designed to minimize infiltration and subsequent leachate generation based on water balance calculations and leachate controls used.<br>● May consist of synthetic membrane, soil, or chemically or physically amended soils approved by the Dept. underlaying at least 6-inches of top soil or soils that sustain vegetation<br>● Types of materials used are dependent upon the LCS used. | Performance Standard |
| GROUNDWATER MONITORING | GWM is required at Class I & II sanitary landfills | Performance Standard |
| CORRECTIVE ACTION | No mention in regulation | No standard |

**STATE:** Idaho
**Date of Regulation:** September '85

**Overall Standard:** The sanitary landfill shall be located and operated such that solid waste is not dumped directly into GW and SW and adequate protection shall be provided to prevent the pollution of GW and SW.

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | No standard. | No standard |
| LEACHATE COLLECTION SYSTEM | ● May be required if leachate problem will develop. | Performance Standard |
| FINAL COVER | ● Design standard specifies slopes and 2' thickness | Design Standard/ Unknown if Comparable |
| GROUNDWATER MONITORING | May be required. | Performance Standard |
| CORRECTIVE ACTION | No standard (guidance?) | No standard |

**STATE:** Indiana
**Date of Regulation:** (Proposed) December '85 **Overall Standard:** None stated.

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | • Minimum of 3 feet of soil with a hydraulic conductivity less than 5 times $10^{-6}$ cm/sec with a synthetic liner which has a thickness, composition, and construction adequate to prevent migration<br>• Sites w/out synthetic liner are required at a minimum to have 10 feet of 5 times $10^{-6}$ cm/sec at sites located over locally useful aquifers; and 5 feet of 5 times $10^{-6}$ cm/sec in all other cases.<br>• State may allow variences to calculations based on substituted soils & other factors. | Design Standard/ Unknown if comparable |
| LEACHATE COLLECTION SYSTEM | • If LCS is present then the calculations for the liner may be reduced in proportion to the fraction the LCS is designed and will be operated to remove leachate. | Design Standard/ Unknown if Comparable |
| FINAL COVER | • Maximum projected erosion rate of 5 tons per acre per year.<br>• Six inches of topsoil and a minimum depth of compacted clay of two feet for slopes less than or equal to 15%; of three feet for slopes greater than 15% but less than 25%; and of four feet for slopes greater than 25%.<br>• Final cover shall have a slope of not less than 4% and not greater than 33%.<br>• Vegetative cover.<br>• Alternative cover may be approved if determined comparable. | Design Standard/ Unknown if Comparable |
| GROUNDWATER MONITORING | • All landfills must have monitoring wells within 50 feet of solid waste boundary (Parameters not specified). | Performance Standard |
| CORRECTIVE ACTION | Remedial action may be required if statistically significant increase in parameters over background conc. or primary drinking water standards. | Performance Standard |

**STATE:** New Jersey
**Date of Regulation:** January '87

**Overall Standard:** No new or existing sanitary landfill shall be conducted or continue to conduct where the solid waste or leachate resulting from the landfill impairs the quality of GW or SW.

| REGULATORY PROVSIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | No requirement. | No standard |
| LEACHATE COLLECTION SYSTEM | ● All facilities accepting after Sept. 15, 1975 pesticides, hazardous and chemical wastes, bulk liquid or semi-liquid have to install a leachate interception, collection and treatment system. According to the regulations, sanitary landfills other than those accepting the above wastes, do not have to have leachate collection systems.<br>● If a design includes an impermeable liner under the fill area, the method of collection and treatment of leachate generated within the fill shall be detailed. | Performance Standard |
| FINAL COVER | "Final cover material should be applied to any surface of the fill where the final, planned elevation has been obtained, and to all surfaces when the landfill operation is terminated. The grade and thickness of cover material on all surfaces of the fill shall be maintained until stabilized." | Performance Standard |
| GROUNDWATER MONITORING | All new facilities must have a groundwater monitoring system installed according to instruction furnished by the Department. Should obtain GW samples and analyses prior to start of operation. If the operation of the existing facility poses a threat to the quality of GW, the operator shall install a GW monitoring system and analyze GW. The regulations require a full water analysis and heavy metals. It does not mention organics (except phenols) it does require analysis of synthetic detergents in the GW. Landfills accepting sewage sludge septic tank should have monitoring wells. | Performance Standards |
| CORRECTIVE ACTION | No requirement | No standard |

**STATE:** New Mexico
**Date of Regulation:** June '74 **Overall Standard:** None stated.

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | No requirement. | No standard |
| LEACHATE COLLECTION SYSTEM | No requirement. | No standard |
| FINAL COVER | • 2 feet final cover with proper grading | Design Standard/ Unknown if Comparable |
| GROUNDWATER MONITORING | No requirement. | No standard |
| CORRECTIVE ACTION | No requirement. | No standard |

**STATE:** New York
**Date of Regulation:** March '87

**Overall Standard:** Solid waste shall not be deposited in and shall be prevented from entering, surface waters or ground waters.

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | ● A vertical separation exceeding five feet shall be maintained between solid waste and the seasonal high ground water table or bedrock.<br>● Natural or artificial liner that restricts infiltration to the equivalent of five feet of soil at hydraulic conductivity of $10^{-5}$ cm/sec or less. | Design Standard/ Unknown if Comparable |
| LEACHATE COLLECTION SYSTEM | ● Required LCS and storage for all new and modified (lateral expansion) landfills.<br>● Leachate shall not be allowed to drain or discharge into surface water | Performance Standard |
| FINAL COVER | ● 2 feet of final cover.<br>● Cover material & drainage control designed, graded & maintained to prevent ponding and erosion & to reduce to a minimum infiltration of water into the solid waste cells.<br>● Grass or ground top cover crop required. | Design Standard/ Unknown if Comparable |
| GROUNDWATER MONITORING | ● Minimum of 3 monitoring wells with two downgradient. | Performance Standard |
| CORRECTIVE ACTION | No requirement. | No standard |

**STATE:** Pennsylvania
**Date of Regulation:** October '85

**Overall Standard:** All areas of solid waste management systems, including all processing & disposal facilities shall be operated in such a manner as to prevent health hazards and environmental degradation.

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | • LF must have min. of 6 ft. of "renovating soil" between refuse & any sidewall w/slope <110°. If sidewalls slope >110° renovating soil layer must be equal to depth of refuse. Min. 8 ft renovating soil beneath refuse and above hi. GW. table/bedrock for 1.8 ft. left.<br>• Synthetic liner permeability must be $\leq 1 \times 10^{-7}$ cm/sec.<br>• Given max. conc. of components (sup. 7518), must have manufacturers warranty<br>• Too much design-specific data to include here!<br>• Unclear when or if liner required | Design Standard/ Unknown if Comparable |
| LEACHATE COLLECTION SYSTEM | • A great deal of design-specific information included<br>• Not clear when -or if- LCS required | Design Standard/ Unknown if Comparable |
| FINAL COVER | • Must be USDA textural class; sandy loam, loam, sandy clay loam, silty clay loam, or silt loam, otherwise must get State approval.<br>• Must compact well, not crack excessively and support vegetative cover.<br>• Coarse fragment content shall not exceed 60% by volume.<br>• Completed within 2 weeks after filing final lift.<br>• Compacted to a minimum uniform depth of two feet. | Design Standard/ Unknown if Comparable |
| GROUNDWATER MONITORING | • Min. 1 GWM pt. in each dominant direction of GW movement and 1 upgradient.<br>• Locations must be approved before drilling.<br>• Wells ("pts") located "not inexcess of" 500 ft of permitted area.<br>• Chemical analysis & data submitted quarterly. Purge each pt. before annual sample analysis.<br>• Disposal "prohibited where continuous or intermittent contact occurs between solid waste and GW table". | Performance Standard |
| CORRECTIVE ACTION | No requirement. | No standard |

**STATE:** South Carolina
**Date of Regulation:** September '71 and March '85 **Overall Standard:** None stated.

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | ● "Provisions to prevent leachate from entering GW/SW." required | Performance Standard |
| LEACHATE COLLECTION SYSTEM | No requirement. | No standard |
| FINAL COVER | ● Min. compacted 2 ft. of well-graded soil usually okay, although additional may be necessary<br>● Placed within 1 week of final fill or wherever refuse will not be added within 1 year.<br>● Suitable plantings (i.e., vegetation). | Design Standard/ Unknown if Comparable |
| GROUNDWATER MONITORING | ● State Bd. of Health can deem "observation test wells reveal reliable data on GW contamination" necessary. | Performance Standard |
| CORRECTIVE ACTION | ● Routine inspection & evaluation of operations made by State Bd. of Health.<br>● Corrective work must be performed if necessary before completion. | No standard |

**STATE:** Texas
**Date of Regulation:** October '86

**Overall Standard:** None stated.

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | • At least 3 ft. of soil having a maximum coefficient of permeability of 1 x $10^{-7}$ cm/sec or unless some other means approved by the department.<br>• If less than 3 ft a protective cover of 1 ft in addition to liner required.<br>• Man-made (synthetic) may be used if demonstrated as protective<br>• Water balance method used to determine need for liner (rainfall, evapotranspiration and soils data). | Design Standard/ Unknown if Comparable |
| LEACHATE COLLECTION SYSTEM | LCS not mentioned in regs. | No standard |
| FINAL COVER | • No less than 2 feet with the first 1-1/2 feet being a clayey soil of classification SC or CL & final 6 inches capable of sustaining vegetation (other types of soils may be used upon approval).<br>• Maintained for minimum of 5-years. | Design Standard/ Unknown if Comparable |
| GROUNDWATER MONITORING | • Require GWM to monitor ground water quality unless demonstrated that there is a low potential for creation and migration of leachate.<br>• GWM does include organics if required (TOC)<br>• Water balance of precipitation, evaporation, runoff and infiltration evaluated to determine if leachate generated. | Performance Standard |
| CORRECTIVE ACTION | • Permit application requires explanation on provisions for taking corrective actions when indicated for the first five years after closure, and longer if necessary for recurring problems.<br>• If leachate is found through GWM to be contaminating GW-appropriate corrective action to be taken will be directed by the department. | Performance Standard |

**STATE:** Wisconsin
**Date of Regulation:** August '86

**Overall Standard:** No solid waste shall be deposited in such a manner that the solid waste or leachings therefrom will have a detrimental effect on any ground or surface water.

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | No solid waste shall be deposited in such a manner that the solid waste or leachings therefrom will have a detrimental effect on any ground or surface water.<br>[Actual requirements may be discussed in guidance] | Performance Standard |
| LEACHATE COLLECTION SYSTEM | No mention in regulation whether required.<br>Information on LCS must be described in plan sheet for permit application.<br>[Actual requirements may be discussed in guidance]<br>● Leachate treatment required for those sites with LCS. | No standard |
| FINAL COVER | ● No less than 2 feet of compacted earth sloped adequately to allow surface water runoff.<br>● Designed to minimize infiltration and subsequent leachate production. | Design Standard/ Unknown if Comparable |
| GROUNDWATER MONITORING | May require GWM at sites. | Performance Standard |
| CORRECTIVE ACTION | No mention in regulation. | No standard |

**STATE:** Alabama
**Date of Regulation:** July '83

**Overall Standard:** Do not contaminate USDW beyond waste boundary.

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | Where natural conditions insufficient:<br>• 2' of $10^{-7}$ cm/sec or<br>• 20 mils $1 \times 10^{-12}$ cm/sec | Design Standard/ Unknown if Comparable |
| LEACHATE COLLECTION SYSTEM | May be required by State | Performance Standard |
| FINAL COVER | 2' soil cover with proper grading | Design Standard/ Unknown if comparable |
| GROUNDWATER MONITORING | Minimum 1 up-gradient, 2 down-gradient, with design stds for wells. Monitoring determined by State. | Performance Standard |
| CORRECTIVE ACTION | No requirement. | No standard |

**STATE:** Alaska
**Date of Regulation:** October '83

**Overall Standard:** Leachate must not violate GW quality standards beyond waste boundary.

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | No requirement. | No standard |
| LEACHATE COLLECTION SYSTEM | No requirement. | No standard |
| FINAL COVER | ● Properly graded.<br>● Support vegetation. | Design Standard/ Unknown if Comparable |
| GROUNDWATER MONITORING | No requirement. (Guidance) | No standard |
| CORRECTIVE ACTION | No requirement. (Guidance) | No standard |

**STATE:** Arizona
**Date of Regulation:** May '79

**Overall Standard:** The landfill shall be located so that seepage will not create a health hazard, nuisance or cause pollution of any watercourse or water bearing strata.

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | No requirement. | No standard |
| LEACHATE COLLECTION SYSTEM | No requirement. | No standard |
| FINAL COVER | The final compacted earth cover shall be a minimum of 2 ft. in depth. | Design Standard/ Unknown if Comparable |
| GROUNDWATER MONITORING | The landfill shall be located so that seepage will not create a health hazard, nuisance, or cause pollution of any watercourse or water bearing strata. | No standard |
| CORRECTIVE ACTION | No requirement. | No standard |

**STATE:** California
**Date of Regulation:** October '84

**Overall Standard:** No Standard Stated.

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | ● A minimum of 5-feet must be between waste and highest anticipated elevation of underlying ground water.<br>● Class II (receive designated waste) - Clay liner or natural material with permeability $\leq 1 \times 10^{-6}$ cm/sec and minimum of 2 feet.<br>● Class III (non-hazardous waste) - if site characteristics (e.g., distance to GW, soil characteristics) alone will not protect GW & SW need clay liner (single) with permeability of $\leq 1 \times 10^{-6}$ cm/sec and minimum of 1 foot. | Design Standard/ Unknown if Comparable |
| LEACHATE COLLECTION SYSTEM | LCS required for:<br>● Class II landfills*<br>● Class III landfills that have a liner or accept sewage or water treatment sludge<br>*Waiver if only receive dry waste and demonstrate, based on climatic and hydrogeologic conditions, that leachate will not be formed in, or migrate from the unit. | Performance Standard |
| FINAL COVER | ● A minimum thickness of 2 feet of compacted cover material of a quality suitable for the intended reuse of the site. Must be put in placed within 15 months from time of placement of final lift.<br>● Maintain and monitor for 5-years. | Design Standard/ Unknown if Comparable |
| GROUNDWATER MONITORING | Extensive GWM program for Class II and III<br>● Very similar to Subtitle C, detection monitoring, compliance monitoring, GWPS (water quality protection standard), Point of Compliance, statistical procedure, etc.<br>Also must monitor unsaturated zones. | Design Standard/ Equivalent |
| CORRECTIVE ACTION | Yes if GWPS is exceeded must implement corrective action plan. | Performance Standard/ Equivalent |

**STATE:** Colorado
**Date of Regulation:** July '85 **Overall Standard:** No Standard Stated.

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | "The engineering design shall specify the type and quality of material that will be required for use as liner material or final cover." | No standard |
| LEACHATE COLLECTION SYSTEM | The engineering design shall show "the location and dimensions of all surface water containment structures, including those designed to impound contaminated runoff leachate, sludge or liquids for evaporative threatment." | No standard |
| FINAL COVER | 2 feet. | Design Standard/ Unknown if Comparable |
| GROUNDWATER MONITORING | Monitoring upgradient and downgradient where final disposal or liquids evaporative treatment is performed. The water quality shall be determined by the operator. Regular monitoring. | Performance Standard |
| CORRECTIVE ACTION | No requirement. | No standard |

**STATE:** Delaware
**Date of Regulation:** June '84

**Overall Standard:** Potential for water pollution shall be minimized at sanitary landfills.

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | ● Impermeable liner required.<br>● Synthetic unless proven that natural soil is impermeable. | Performance Standard |
| LEACHATE COLLECTION SYSTEM | ● LCS required for sanitary LF (and leachate treatment and disposal systems).<br>● Must maintain and operate LC (and treatment) at least 5 years after completion; submit data as specified by Department. | Performance Standard |
| FINAL COVER | ● Suitable material compacted to min. of 2 ft.<br>● Applied by end of working day in which area/cell completed.<br>● Seed cover. | Design Standard/ Unknown if Comparable |
| GROUNDWATER MONITORING | ● Minimize potential for GW pollution.<br>● Wells or other monitoring devices required.<br>● Permittee must repair cracked, eroded, uneven, or insufficient vegetation in final cover if occurs within 2 years after LF completion.<br>● Must maintain monitoring wells at least 5 years after completion; submit data quarterly. | Performance Standard |
| CORRECTIVE ACTION | ● Department may require corrective work before landfill can suspend operations.<br>● Also see GWM above | No standard |

**STATE:** Georgia
**Date of Regulation:** October '74

**Overall Standard:** No person shall engage in solid waste handling in a manner which . . . impair the quality of ground water or surface water.

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | No mention in regulation.<br>[May be in guidance] | No standard |
| LEACHATE COLLECTION SYSTEM | No mention in regulation.<br>[May be in guidance] | No standard |
| FINAL COVER | ● Uniform compacted layer of clean earth cover not less than 2 feet in depth. | Design Standard/ Unknown if Comparable |
| GROUNDWATER MONITORING | No mention in regulation.<br>[May be in guidance] | No standard |
| CORRECTIVE ACTION | No mention in regulation.<br>[May be in guidance] | No standard |

**STATE:** Guam
**Date of Regulation:** June '82

**Overall Standard:** Protect or minimize impact on GW.

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | No requirement. | No standard |
| LEACHATE COLLECTION SYSTEM | Control system if determined necessary to protect GW & SW resources. | Performance Standard |
| FINAL COVER | 2 feet minimum. | Design Standard/ Unknown if Comparable |
| GROUNDWATER MONITORING | Programs for monitoring leachates must be developed in accordance with Part 257 | Performance Standard |
| CORRECTIVE ACTION | No requirement. | No standard |

**STATE:** Hawaii
**Date of Regulation:** November '81

**Overall Standard:** Leachate should not enter waters of state without best practicable treatment.

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | No requirement. | No standard |
| LEACHATE COLLECTION SYSTEM | No requirement. | No standard |
| FINAL COVER | 2 feet and proper grading | Design Standard/ Unknown if Comparable |
| GROUNDWATER MONITORING | Install, maintain and operate monitoring equipment. | Performance Standard |
| CORRECTIVE ACTION | No requirement.<br>(guidance) | No standard |

**STATE:** Illinois
**Date of Regulation:** September '83

**Overall Standard:** Do not cause or allow operation of Sanitary Landfill so as to cause, threaten, or allow the discharge of any contaminants into the environment of any State which could cause or tend to cause water pollution in Illinois.

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | • Adequate measures to monitor and control leachate.<br>• No specific requirements. | No standard |
| LEACHATE COLLECTION SYSTEM | • No specific requirements. (guidance ?) | No standard |
| FINAL COVER | Performance standard. | Performance Standard |
| GROUNDWATER MONITORING | No specific requirement. (inferred ?) | No standard |
| CORRECTIVE ACTION | No requirement. | No standard |

**STATE:** Iowa
**Date of Regulation:** December '86

**Overall Standard:** An agency "dumping or depositing" waste shall do so in a manner that creates no ...degradation of surface waters or aquifers that are in actual or deemed to be of potential use as a water resource.

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | ● Must not allow more than 0.004 $ft^3$/day leakage to GW. | Performance Standard |
| LEACHATE COLLECTION SYSTEM | ● If significant leachate is detected - then control measures must be implemented. | Performance Standard |
| FINAL COVER | ● Minimum 2' with proper grading. | Design Standard/ Unknown if Comparable |
| GROUNDWATER MONITORING | ● As required by Department. | Performance Standard |
| CORRECTIVE ACTION | No standard. | No standard |

**STATE:** Kansas
**Date of Regulation:** May '84

**Overall Standard:** If groundwater which passes beneath a disposal area or processing facility is currently used or designated by the State for purposes other than as or drinking water supply, the groundwater beyond the disposal area property boundary shall be maintained at the quality specified in the disposal area permit.

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | ● No degradation of GW past property line.<br>● No specific requirement (guidance). | No standard |
| LEACHATE COLLECTION SYSTEM | ● No requirement (guidance). | No standard |
| FINAL COVER | ● No requirement (guidance). | No standard |
| GROUNDWATER MONITORING | ● Department may require GWM. | Performance Standard |
| CORRECTIVE ACTION | ● Inferred from overall performance standard in liner section. | No standard |

**STATE:** Kentucky
**Date of Regulation:** February '86

**Overall Standard:** No disposal facility shall: contaminate an underground drinking source beyond the waste boundary (max. contaminant levels are in Section 2 of these regulations).

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | • Required for type 2-min. layer of 12 in. of 1 x $10^{-7}$ cm/sec permeability [assume they mean natural soil or clay] or the equivalent.<br>• Since type 4 LF design must incl. "description of permeability of the liner," [assume a liner is required]. | Design Standard/ Comparability Unknown |
| LEACHATE COLLECTION SYSTEM | • Leachate "contingency" plan & specifications for collecting & treating or other control of leachate . . . " required for type 2.<br>• LCS or other control system required for type 3).<br>• May be req'd. for type 4. | Performance Standard |
| FINAL COVER | • Types 1, 2, 3 must have min. 2 ft applied w/in 365 days of last placement of waste, maintained at proper elevation for 2 yrs, revegetated as necessary.<br>Required in permit - no specifications given for type 4. | Design Standard/ Comparability Unknown |
| GROUNDWATER MONITORING | • Max. GW contaminant levels specified.<br>• Required if Cabinet deems necessary based on geological & other relevent aspects for type 2.<br>• If required, must have min of 1 upgradient & 2 downgradient wells<br>• Required for type 3 LFs ("contained LF"). Minimum 1 up & 3 down and a monitoring schedule. | Design Standard/ Comparability Unknown |
| CORRECTIVE ACTION | • For types 1, 2, 3 as required by Cabinet before LF accepted as closed. | Performance Standard |

**STATE:** Louisiana
**Date of Regulation:** February '87

**Overall Standard:** Sites "located in, or adjacent to, . . . recharge areas, and similar critical environmental areas shall be isolated from such areas by effective barriers which eliminate probable adverse impacts on such area due to operation of the facility." Design standards for water protection are included in these regulations.

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | Must have one of the following liners:<br>• Natural liner - 3 ft of clay no greater than 1 x $10^{-7}$ cm/sec permeability, first 6-12" of clay shall be scarified & recompacted.<br>• Soil mixture liner - soil cement and/or clay additive to natural soils → to produce at least 3 ft with permeability of 1 x $10^{-7}$ cm/sec.<br>• Recompacted clay liner - insitu or imported - 3 ft of 1 x $10^{-7}$ cm/sec permeability.<br>• Manufactured liner - synthetic at least as impermeable as natural liner.<br>• Combination liner - any combination of above. | Design Standard/ Comparability Unknown |
| LEACHATE COLLECTION SYSTEM | One of a combination of following shall be used to prevent leachate from polluting aquifers or otherwise damaging the environment:<br>• Control of leachate production by preventing infiltration of water into the wastes.<br>• Control escape of leachate from landfill by installing barriers or liners of low permeability.<br>• Control of the impact of leachate on the env. due to action of the soil through attenuation.<br>GWM installed to determine effectiveness of leachate control. | No standard |
| FINAL COVER | • 24 inches of any cover material that minimizes fire hazards, odors, blowing litter, vector food and harborage, and infiltration of precipitation; discourages scavenging; limit erosion; and provide an aesthetic appearance. Must be revegetated. Other covers which provide a more practical answer and meet these purposes may be submitted for approval.<br>• Installed in accordance w/ regulations and graded to drain.<br>• Maintained for a period not less than 3 years. | Design Standard/ Comparability Unknown |
| GROUNDWATER MONITORING | • Monitoring must be installed to determine effectiveness of leachate control.<br>• GWM conducted - baseline and semi-annually & reported at least four indicator parameters. | Performance Standard |
| CORRECTIVE ACTION | No mention in regulation. (May be in guidance) | No standard |

**STATE:** Maine
**Date of Regulation:** October '85

**Overall Standard:** The waste handling site shall not overlie a surficial geological formation which represents a recharge area for groundwater supplies. Site shall not be closer than 300 ft. to a body of classified water or tributary thereof, unless variance is granted. Landfills shall not contaminate groundwater beyond the outermost boundary of the solid waste disposal area, if the area is designated as a groundwater protection zone. Landfills shall not contaminate groundwater beyond an alternative boundary established by the Board, if the area downgradient from the landfill is not designated as a groundwater protection zone. A landfill shall not cause point source or non-point source pollution of waters of the State.

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | ● Waste shall be placed a minimum of 5 feet above the seasonal high water table and bedrock.<br>● Landfill shall not contaminate ground water beyond the outermost boundary of the area where solid waste is to be disposed, if the area is designated a GW protection zone.<br>● Not allow to site in areas of primary recharge for ground water supplies (15 to 17% of State).<br>● Located on soils which contain a minimum stones and cobbles and 1) are able to provide sufficient capacity to permit infilation or attenuation of all generated leachate or 2) are able to contain sufficient fines & clay-sized particles to minimize infiltration of generated leachate (LCS then required)<br>Note: (well-graded glacial till soils or soils formed on glacial marine clay usually meet this requirement). | Performance Standard |
| LEACHATE COLLECTION SYSTEM | ● Must show soil attenuative capacity in on-site evaluation report<br>● Water Balance method used to assess volume of leachate generated when LCS is to be used. | Performance Standard |
| FINAL COVER | ● 2 feet of well-graded soil material containing a minimum of 1½ feet compacted thickness of 35% of greater fines that is capped w/ 6 inches of material of a composition suitable to sustain plant growth. Placed w/in 14 days of final placement of waste.<br>Note: Two primary reasons 1) to minimize generation of leachate by retarding penetration of precipitation into disposal waste & 2) encourage plant growth to stimulate evapotranspiration & prevent soil erosion. | Design Standard/ Comparability Unknown |
| GROUNDWATER MONITORING | ● GWM required with minimum of five parameters<br>- conducted & results submitted quarterly for sites seeking site location approval.<br>● GWM may be required at other sites depending upon degree of possible contamination & threat to public health & safety. | Performance Standard |
| CORRECTIVE ACTION | No requirement. | No standard |

**STATE:** Maryland
**Date of Regulation:** May '82

**Overall Standard:** A person may not handle solid waste "in a manner which will likely . . . cause pollution of ground or surface waters . . . or impair the quality of the environment . . . "

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | • Design must prevent migration of pollutants from LF to subsurface soil, GW, SW.<br>• Design-Specific minimum (1) clay (inplace permeability $\leq 1 \times 10^{-7}$ cm/sec) or (2) 2 ft. clay ($1 \times 10^{-6}$ cm/sec) or (3) one or more synthetic membranes w/total min. thickness of 80 mil and permeability $\leq 1 \times 10^{-7}$ cm/sec, placed over prepared subbase w/min. thickness of 2 ft & perm. $\leq 1 \times 10^{-5}$ cm/sec.<br>• Alternate systems authorized only if applicant demonstrates equivalent protection.<br>• Liner must be located w/min. buffer distance between it and max. GW level. | Design Standard/ Comparability Unknown |
| LEACHATE COLLECTION SYSTEM | Performance Standard<br>• Construct from materials that are chemically resistant to waste and to leachate expected.<br>• Sufficiently strong & thick so as not to collapse from pressure of waste, waste cover materials, & equipment.<br>• Designed & operated to function without clogging | Performance Standard |
| FINAL COVER | • Uniform compacted layer of the earthen material not <2 ft placed over final lift not >1 month after filling final lift. | Design Standard/ Comparability Unknown |
| GROUNDWATER MONITORING | Performance<br>• System for monitoring quality of waters around and beneath site.<br>• Permit must state location and types of monitoring stations - methods of well construction.<br>• Wells installed in accordance with COMAR 10.17.13 by licensed well drillers. Approving authority "may require the permit holder to periodically collect & analyze GW & SW . . . " | Performance Standard |
| CORRECTIVE ACTION | • Operate to "prevent air, land, or water pollution, public health hazards or nuisances."<br>• Closure & post closure plans for no < 5 yrs. after applying final cover.<br>• Emergency plan must include "contingency plans" for "mitigating" water pollution. | Performance Standard |

**STATE:** Massachusetts
**Date of Regulation:** April '71

**Overall Standard:** Potential for land and water pollution must be minimal. Sanitary landfills, by definition, are a "method of disposing solid wastes on land in such a manner as will . . . prevent . . . danger to the public health by reason of . . . water pollution . . . "

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | No requirement. (Possibly guidance) | No standard |
| LEACHATE COLLECTION SYSTEM | No requirement. (Possibly guidance) | No standard |
| FINAL COVER | ● Must support vegetation<br>● 2 feet deep with proper grading | Design Standard/ Comparability Unknown |
| GROUNDWATER MONITORING | No requirement. (Possibly guidance) | No standard |
| CORRECTIVE ACTION | No requirement. (Possibly guidance) | No standard |

**STATE:** Michigan
**Date of Regulation:** December '81

**Overall Standard:** "The design & siting of sanitary landfills shall insure that groundwater at the solid waste boundary will not exceed standards described in . . . 40 CFR Part 257.3-4 and Appendix I of 40 CFR Part 257, or that the concentration of substances will not be increased where their existing concentration exceeds the maximum levels established in 40 CFR Part 257, Appendix I, unless groundwater is unsuitable for human consumption by having 10,000 mg/l total dissolved solids. All requirements for the protection of surface and groundwater contained in Act 245 and rules promulgated there under shall be met".

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | Type II natural clay sites where the clay does not extend to the surface shall include side cutoff walls to impede the lateral infiltration . . . and to impede lateral flow of leachate. A minimum wall width of 10 feet of clay with a permability of not more than $10^{-7}$ cm/sec is required when there is a possibility of hydraulic head build-up of 5 feet or less outside the wall. 40 ft of vertical isolation between GW & the bottom of the fill. A compacted soil liner thickness = 3 ft, K = $10^{-7}$ mils & a cover of a min. of 18 ft of permeable material. Polyvinyl chloride sheeting or equivalent material not less than 20 units thick . . . | Design Standard/ Comparability Unknown |
| LEACHATE COLLECTION SYSTEM | The sanitary landfill (except some) shall have leachate collection systems (and disposal or treatment). | Design Standard/ Comparability Unknown |
| FINAL COVER | The minimum 2 ft of soil compacted to not less than 90% of maximum dry density as determined by the modified proctor test | Design Standard/ Comparability Unknown |
| GROUNDWATER MONITORING | Groundwater monitor program & adequate monitor system installation. Quarterly monitoring (at best when permeability of soil $K > 10^{-4}$ cm/sec) of wells in the direction of GW flow. Parameters: pH, COD and not more than 2 additional parameters, if needed, as determined by the Department. | Design Standard/ Comparability Unknown |
| CORRECTIVE ACTION | The design plan should include "mitigating measures". | Performance Standard |

**STATE:** Minnesota
**Date of Regulation:** July '83

**Overall Standard:** "Solid waste shall not be deposited at any intermediate or final solid waste disposal site in such a manner that material or leachings therefrom may cause pollution of ground or surface water"

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | Separation by the bottom of the landfill and the high water table: min. 5 ft. . . . additional GW protection shall be provided as needed. | Design Standard/ Comparability Unknown |
| LEACHATE COLLECTION SYSTEM | Approved leachate collection and treatment system shall be used where required to protect underground and surface water | Design Standard/ Comparability Unknown |
| FINAL COVER | At least 2 ft of compacted earth material graded to a min 2% slope. | Design Standard/ Comparability Unknown |
| GROUNDWATER MONITORING | "A water monitoring program shall be constructed and operated. Wells shall be installed in compliance with Minnesota Statutes. Chapter 757. The conditions of monitoring shall be determined by the director." | Design Standard/ Comparability Unknown |
| CORRECTIVE ACTION | | No standard |

**STATE:** Mississippi
**Date of Regulation:** September '84

**Overall Standard:** A site shall not be located "where a hazard may result to a drinking water supply well, intake of a water, treatment plant, or raw water intake which nourishes water for human consumption." A facility shall be designed to protect the groundwater [in general, to protect the existing water quality from deterioration] . . . and to prevent degradation of the environment."

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | ● Required when necessary.<br>● To help decide when liner is necessary, calculate potential percolation of precipitation and potential for leachate generation by EPA SW-168 (Water Balance Method). | Performance Standard |
| LEACHATE COLLECTION SYSTEM | No requirement. | No standard |
| FINAL COVER | ● 2 ft of earthen material compacted in layers of no > 12 in.<br>● Top 6 in. must consist of suitable topsoil that will sustain vegetation.<br>● Placed w/in 30 days after final fill unless in inclement weather prevents application of dry cover mat'l. | Design Standard/ Comparability Unknown |
| GROUNDWATER MONITORING | ● "Monitoring" (GW) may be required in post closure care plan.<br>● If located w/in 500 ft of drinking water supply well, intake of a water treatment plant, or raw water intake, "data shall be provided to show that adequate protection to drinking water sources is provided." | Performance Standard |
| CORRECTIVE ACTION | ● For 1st year after closure, site operator shall periodically inspect and correct as necessary any problems associated w/erosion, vegetative growth, leachate or methane migration, subsidence & ponding w/water.<br>● If problems persist beyond 1 year site operator is responsible for their correction until Department says problem solved. | No standard |

**STATE:** Missouri
**Date of Regulation:** January '87

**Overall Standard:** "The location, design, construction, and operation of a sanitary landfill shall minimize environmental hazards and shall conform to applicable ground and surface water standards and regulations."

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | • Bottom and sides required. Must minimize migration of leachate from the landfill.<br>• If compacted soil liner, min. requirements are:<br>- at least 2 ft. of soil, constructed of 6 to 8 inch lifts, compacted to 95% of standard Proctor density w/moisture content between 2% below and 4% above the optimum moisture content.<br>- use soils having the following characteristics, at minimum:<br>- be classified under the Unified Soils Classification Systems as CL, CH, GC, or SC (ASTM Test D2487-85)<br>- allow $>$30% passage through a No. 200 sieve (ASTM Test D1140)<br>- have liq/ limit $\geq$20 (ASTM Test D4318-84)<br>- have plasticity index $\geq$ 10 (ASTM Test D4318-84)<br>- have coefficient of permeability $\leq$ 1 x $10^{-6}$ cm/second when compacted to specifications listed earlier.<br>• If man-made liner, minimium requirements are:<br>- be constructed of materials having appropriate chemical resistance, strength, and thickness to prevent failure<br>- be placed in foundation/base capable of supporting liner and providing resistance to pressure gradients above and below liner to prevent liner failure [due to settlement, comparison, or uplift]<br>• Dept. can exempt O/O from the above requirements if O/O can demonstrate that location characteristics and/or site design will satisfactorily minimize migration of constituents. | Design Standard/ Unknown if Comparable |
| LEACHATE COLLECTION SYSTEM | • Required<br>• LCS must be constructed of materials which are:<br>- chemically resistant to waste managed & leachate expected<br>- sufficiently strong & thick to prevent collapse<br>• Must be designed & operated to function w/o clogging through scheduled closure & post-closure of the landfill<br>• Must be designed & operated so that leachate formed flows by gravity into collection sumps, from which leachate can be collected, treated, or disposed of. | Design Standard/ Unknown if Comparable |
| FINAL COVER | • Minimum of 2 ft. compacted. | Design Standard/ Unknown if Comparable |

**STATE:** Missouri (Continued)
**Date of Regulation:** January '87

**Overall Standard:** "The location, design, construction, and operation of a sanitary landfill shall minimize environmental hazards and shall conform to applicable ground and surface water standards and regulations."

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| GROUNDWATER MONITORING | ● Required upstream and downsteam<br>"Ground or surface water shall not be allowed to come into contact with solid wastes so as to impair the water's use" | Performance Standard |
| CORRECTIVE ACTION | No requirement | No standard |

**STATE:** Montana
**Date of Regulation:** October '86

**Overall Standard:** Sites must be located only in areas which prevent the pollution of ground and surface waters and public or private water supply systems.

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | No requirement. | No Standard |
| LEACHATE COLLECTION SYSTEM | "Adequate separation of wastes from underlying or adjacent water unit be provided" | No Standard |
| FINAL COVER | "At least 2 feet of earth cover material within 1 week after the final deposit. . . " (unless the licesnee has shown good cause for not covering) | Design standard/ Comparability Unknown |
| GROUNDWATER MONITORING | The site plan must contain detailed descriptions of the waste water treatment procedures, impermeable liners, leachate control systems. . . When the requirements regarding permeability and depth to water table cannot be met, the department may require that the disposal facility include provisions for monitoring leachate and ground-water. Criteria for Class II landfill: Soil type- MH, OL, ML, SM, GM; Permeability vertical and lateral: K = $10^{-6}$ to $10^{-3}$ cm/s, K = 1-1035, Water table: 10 to 20 ft/min. | Performance Standard with exception |
| CORRECTIVE ACTION | No requirement. | No Standard |

**STATE:** Nebraska
**Date of Regulation:** February '83

**Overall Standard:** "Ground or surface water, except precipitation falling directly on the working face shall not be allowed to come in contract with solid wastes so as to impact the waters' use.

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | No requirement. | No Standard |
| LEACHATE COLLECTION SYSTEM | LCS and treatment systems should be used whenever necessary<br>"refuse shall be covered with at least 6 inches of earth to . . . and to permit only minimal percolation of surface water" | Performance Standard |
| FINAL COVER | A compacted 2 ft earthern layer - gross planted - The surface maintained at the plan elevation | Design standard/ Comparability Unknown |
| GROUNDWATER MONITORING | Monitoring may be required for sites. | Performance Standard |
| CORRECTIVE ACTION | "Any operation which proposes to deposit refuse within or near the maximum water table elevation shall include corrective or preventive measures which will prevent contamination of gw stratum.<br>[also see p. 1236:0504-0505 of BNA] | Performance Standard |

**STATE:** Nevada
**Date of Regulation:** November '82

**Overall Standard:** Sites should safeguard against water pollution originating from the decomposed solid waste.

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | No requirement. | No Standard |
| LEACHATE COLLECTION SYSTEM | No requirement. | No Standard |
| FINAL COVER | "A layer of suitable cover material, compacted to a minimum uniform depth of 24 inches must be placed . . . within 30 days of lift completion. | Design Standard/ Comparability Unknown |
| GROUNDWATER MONITORING | Solid wastes must not be placed in surface or groundwaters or within 4 ft of the highest groundwater table | No Standard |
| CORRECTIVE ACTION | No requirement. | No Standard |

**STATE:** New Hampshire
**Date of Regulation:** October 1983

**Overall Standard:** "Facilities or practices shall not contaminate groundwater in violation of rules promulgated by the New Hampshire water supply and pollution control commission or conditions of the permit".

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | No requirement. | No Standard |
| LEACHATE COLLECTION SYSTEM | No requirement. | No Standard |
| FINAL COVER | "Final cover matierals shall be available that will permit final cover of the facility in accordance with its approved closure plan. At least 12 inch of final cover material on all portions of the landfill that will not be used within the next 12 months. The final cover material shall be placed over the intermediate cover layer and seeded. | Design Standard/ Comparability Unknown |
| GROUNDWATER MONITORING | "Facilities or practices shall not contaminate groundwaters" (general). Sanitary landfills: "at least 1 groundwater monitoring well installed upgradient and 2 wells down-gradient. May require additional wells. The wells should be sampled at intervals and analyzed for parameters specified in the operating plan. | Performance Standard |
| CORRECTIVE ACTION | No requirement. | No standard |

**STATE:** North Carolina
**Date of Regulation:** July '85

**Overall Standard:** A site shall not contaminate an underground drinking source beyond the property boundary, and shall be designed so that the bottom elevation of solid waste will be a minimum of 4 ft. above the seasonal high water table.

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | No requirement. | No Standard |
| LEACHATE COLLECTION SYSTEM | ● "Leachate shall be contained on-site or properly treated prior to discharge." | Performance Standard |
| FINAL COVER | ● Min. 2 ft compacted "suitable" earth within 6 mo. of final termination of disposal operations.<br>● Seeded with native grasses or other suitable vegetation within 6 mo. after final dispoal operations. | Design Standard/ Comparability Unknown |
| GROUNDWATER MONITORING | ● As required by division to "detect the effects of the facility on gw in the area." [same thing required for sw]<br>● "Site shall not contravene GW standards* as established under NCAC 2L, as amended thru Jan 1, 1985."<br>● GWMS required.<br>● Wells must comply with monitoring well construction standards of 15 NCAC 2C.0105, amended thru Jan. 1, 1985. | Performance Standard |
| CORRECTIVE ACTION | ● Division may require action to correct any condition which is or may become injurious to the public health. | Performance Standard |

* These standards include specific contaminant levels

**STATE:** North Dakota
**Date of Regulation:** July '80

**Overall Standard:** None specifically stated. Protective of ground- and surface water implied.

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | No requirement | No Standard |
| LEACHATE COLLECTION SYSTEM | Used when required by Dept. to protect gw and sw. | Performance Standard |
| FINAL COVER | • 2 feet of compacted earth and properly graded. | Design Standard/ Unknown if Comparable |
| GROUNDWATER MONITORING | • Used when required by Dept. | Performance Standard |
| CORRECTIVE ACTION | No requirement | No Standard |

**STATE:** Ohio
**Date of Regulation:** July '86

**Overall Standard:** Solid wastes shall be disposed of only by methods which do not create a nuisance or health hazard, cause water pollution or violate these regulations and any regulation adopted by the Director pursuant to Ohio Revised Code Chapter 3704.

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | No requirement (guidance?) | No standard |
| LEACHATE COLLECTION SYSTEM | • collected if detected - no requirement that LCS be installed prior to operation | Performance Standard |
| FINAL COVER | • minimum of 2 ft of low permeability material and 2% grade | Design standard/ Comparability Unknown |
| GROUNDWATER MONITORING | • Minimum - monitoring for indicators | Performance Standard |
| CORRECTIVE ACTION | • If problems occur after closure that may pollute gw or sw CA may be taken if leachate detected after closure | Performance Standard |

**STATE:** Oklahoma
**Date of Regulation:** April '87

**Overall Standard:** "All facilities and sites subject to these regulations shall be designed, constructed, and operated in a manner that will prevent and avoid contamination of surface waters . . . and groundwaters."

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | • Both synthetic and/or natural liners based on size of unit, type of waste, and resource value. Ranges from 5 feet of natural soil to double synthetics. | Design Standard/ Comparability Unknown |
| LEACHATE COLLECTION SYSTEM | • Same as above - ranges from no LCS to LCS and leak detection system | Performance Standard |
| FINAL COVER | Design standard of clay or equivalent, 2 feet thick with minimum 4% slope | Design Standard/ Comparability Unknown |
| GROUNDWATER MONITORING | Received at all sites for indicators - additional monitoring determined by Dept. | Performance Standard |
| CORRECTIVE ACTION | No requirement | No Standard |

**STATE:** Oregon
**Date of Regulation:** August '84

**Overall Standard:** Oregons policy is to "promote and support . . . solid waste management planning, utilizing progressive solid waste management techniques, . . . and insuring highest and best practable protection of . . . water and land resources."

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | No mention of liner in Regulations<br>[may be discussed in guidance] | No Standard |
| LEACHATE COLLECTION SYSTEM | ● Ensure that leachate production is minimized<br>● Where required by the Department, leachate shall be collected and treated or otherwise controlled in a manner approved by the Department | Performance Standard |
| FINAL COVER | 3 feet of compacted soil of a type approved by the Department with vegetative cover | Design Standard/ Comparability Unknown |
| GROUNDWATER MONITORING | Ground-water monitoring may be required based on location and geophysical conditions that indicate that there is a reasonable probability of potential adverse effects on public health or the environment. | Performance Standard |
| CORRECTIVE ACTION | General Groundwater Quality Protection Standard (340-41-029) requires the Environmental Quality Council to insure that when groundwater is being degradated problems abatement plans are developed and implemented. This is done through the waste disposal permit. | Performance Standard |

**STATE:** Rhode Island
**Date of Regulation:** December '82

**Overall Standard:** The regulations are intended to prevent, to the greatest possible extent, contamination of water, land, and air from past, present, and future waste management activities.

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | No specific requirement | No Standard |
| LEACHATE COLLECTION SYSTEM | No specific requirement | No Standard |
| FINAL COVER | • 2' minimum and of specified permeability | Design standard/ Comparability Unknown |
| GROUNDWATER MONITORING | • Required by regulation | Performance Standard |
| CORRECTIVE ACTION | • Required by regulation | Performance standard |

STATE: South Dakato
Date of Regulation: May '86

**Overall Standard:** No person shall dispose of solid waste, including hazardous waste, "in a manner which posses a direct or deleterious threat . . . to the quality of the environment."

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | ● No requirement | No Standard |
| LEACHATE COLLECTION SYSTEM | ● No requirement | No Standard |
| FINAL COVER | ● 2 feet and proper drainage | Design standard/ Comparability Unknown |
| GROUNDWATER MONITORING | ● No requirement (guidance) | No Standard |
| CORRECTIVE ACTION | ● No requirement (guidance) | No Standard |

**STATE:** Tennessee
**Date of Regulation:** January '77

**Overall Standard:** "No site shall be subject to flooding. Geologic conditions shall be such as not to permit pollution of the groundwater. All surface water shall be diverted around the operations area." Operations and maintenance shall be such "as not adversely affect the quality of the environment."

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | No requirement. | No Standard |
| LEACHATE COLLECTION SYSTEM | No requirement. | No Standard |
| FINAL COVER | "A depth of at least 24 inches of compacted cover material shall be placed on the fill not later than 1 week after final lift is completed. The cover should be established immediately. All cracked, eroded and uneven areas in the final cover during the year following final abandonment of the site shall be repaired. | Design Standard/ Comparability Unknown |
| GROUNDWATER MONITORING | No requirement. | No Standard |
| CORRECTIVE ACTION | "There should be no contamination of groundwater." Should an contaminants be released from a registered sanitary landfill, then measures necessary to eliminate the contamination shall be initiated immediately." | Performance Standard |

**STATE:** Utah
**Date of Regulation:** June '81

**Overall Standard:** None specifically stated, although plan approval requires "at least 5 ft of separation between the bottom of disposal trenches and the highest groundwater level, . . . unless the site can be modified so as to demonstrably preclude any wetting of the deposited waste by groundwater."

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | ● At least five feet of separation between the bottom of disposal tranches and the highest ground-water elevation is desireable. Exceptions will be considered on site-by-site cases but only where site can be modified as to demonstrably preclude any wetting of deposited waste by groundwater | Design Standard/ Comparability Unknown |
| LEACHATE COLLECTION SYSTEM | No mention in regulation | No Standard |
| FINAL COVER | ● At least two feet of suitable cover.<br>● Final grading to avoid ponding and provide proper surface drainage. | Design Standard/ Comparability Unknown |
| GROUNDWATER MONITORING | No mention in regulation | No standard |
| CORRECTIVE ACTION | No mention in regulation | No standard |

**STATE:** Vermont
**Date of Regulation:** September '84

**Overall Standard:** Landfills must be "developed in accordance with the application and without undue adverse impact on the ground and surface water quality in the vicinity of the landfill."

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | ● Shall not cause undue adverse impact on gw or sw<br>● no liner requirement<br>● attenuation factor<br>Guidance-base must have $K = 10^{-5}$ cm/sec | No standard |
| LEACHATE COLLECTION SYSTEM | No requirement | No standard |
| FINAL COVER | 12" soil - guidance wants 24" | Design Standard/ Comparability Unknown |
| GROUNDWATER MONITORING | ● Must be performed - Guidance provides details (minimal) | Performance Standard |
| CORRECTIVE ACTION | No requirement | No standard |

**STATE:** Virginia
**Date of Regulation:** April '71

**Overall Standard:** "The site shall be so located and the operations so designed as to prevent the pollution of ground and surface waters."

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | ● must prevent gw and sw pollution<br>● no liner requirement (guidance) | No standard |
| LEACHATE COLLECTION SYSTEM | No requirement (guidance) | No Standard |
| FINAL COVER | ● 2 feet - properly graded to prevent ponding | Design Standard/ Comparability Unknown |
| GROUNDWATER MONITORING | No requirement (guidance) | No Standard |
| CORRECTIVE ACTION | No requirement (guidance) | No Standard |

**STATE:** Washington
**Date of Regulation:** November '85

**Overall Standard:** The "regulation is promulgated...to prevent land, air, and water pollution...." Specific siting and design standards to prevent water pollution are given.

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | "Generally a separation equivalent to four feet of impervious soil shall be the minimum separation between the bottom of the fill and the highest groundwater." | Performance Standard |
| LEACHATE COLLECTION SYSTEM | "Plans for a sanitary landfill shall include provisions for interception and treatment of leachate at all sites where the average annual precipitation is 25 inches or more. Interception and treatment may be required at other sites. A sampling and testing program for the leachate and its treated effluent may be required." | Performance Standard |
| FINAL COVER | "As soon as possible after reaching the final fill lift of given areas of a site, the area shall be covered with an equivalent of two feet of compacted soil adequately sloped to allow surface waters to run off." | Design Standard/ Comparability Unknown |
| GROUNDWATER MONITORING | "Groundwater pollution controls shall be provided as needed" | No standard |
| CORRECTIVE ACTION | No requirement. | No standard |

**STATE:** West Virginia
**Date of Regulation:** June '84

**Overall Standard:** None stated.

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | No requirement, may be in a guidance document | No Standard |
| LEACHATE COLLECTION SYSTEM | No requirement, may be in a guidance document | No Standard |
| FINAL COVER | No requirement, may be in a guidance document | No Standard |
| GROUNDWATER MONITORING | No requirement, may be in a guidance document | No Standard |
| CORRECTIVE ACTION | No requirement, may be in a guidance document | No standard |

**STATE:** Wyoming
**Date of Regulation:** 1975

**Overall Standard:** None stated.

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | No requirement | No Standard |
| LEACHATE COLLECTION SYSTEM | "Reasonable precautions to prevent leachate from entering the surface or ground water in such quantities that violate surface and ground water quality standards." | No Standard |
| FINAL COVER | "A minimum of 2 feet of acceptable cover material shall be placed over any completed segment or cell in such a manner that effective surface drainage will be obtained." "When a site is completed . . . all refuse shall be covered with at least two feet of topsoil and reseeded if sufficient vegetation is not available to stabilize the surface." | Design Standard/ Comparability Unknown |
| GROUNDWATER MONITORING | The Department may require monitoring wells | Performance Standard |
| CORRECTIVE ACTION | No requirement | No standard |

**STATE:** American Somoa
**Date of Regulation:** 1972

**Overall Standard:** Insufficient data

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | No requirement. | No Standard |
| LEACHATE COLLECTION SYSTEM | No requirement. | No Standard |
| FINAL COVER | No requirement. | No Standard |
| GROUNDWATER MONITORING | No requirement. | No Standard |
| CORRECTIVE ACTION | No requirement. | No Standard |

**STATE:** Northern Marianas
**Date of Regulation:** (Draft) Date Unknown **Overall Standard:** None Stated

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | No requirement. | No Standard |
| LEACHATE COLLECTION SYSTEM | Based on site specific conditions must control leachate | Performance Standard |
| FINAL COVER | No requirement. | No Standard |
| GROUNDWATER MONITORING | No requirement. | No Standard |
| CORRECTIVE ACTION | No requirement. | No Standard |

**STATE:** Puerto Rico
**Date of Regulation:** March '82

**Overall Standard:** No person shall cause or permit solid waste pollution.

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | Not mentioned in regulation | No Standard |
| LEACHATE COLLECTION SYSTEM | Not mentioned in regulation | No Standard |
| FINAL COVER | Not mentioned in regulation | No Standard |
| GROUNDWATER MONITORING | • must monitor leachate and surface and ground water quality, or with prior approval an equivalent monitoring system. | Performance Standard |
| CORRECTIVE ACTION | • Take reasonable steps to mitigate any adverse health or environmental impacts resulting from non-compliance. | Performance Standard |

**STATE:** Virgin Islands
**Date of Regulation:** August '78

**Overall Standard:** None stated

| REGULATORY PROVISIONS | SPECIFIC REQUIREMENTS | TYPE OF STANDARD |
|---|---|---|
| LINER | No requirement. | No Standard |
| LEACHATE COLLECTION SYSTEM | No requirement. | No Standard |
| FINAL COVER | No requirement. | No Standard |
| GROUNDWATER MONITORING | No requirement. | No Standard |
| CORRECTIVE ACTION | No requirement. | No Standard |

Wisconsin - McGinley, Paul M., and Peter Kmet; Formation, Characteristics, Treatment, and Disposal of Leachate from Municipal Solid Waste Landfills; Wisconsin Department of Natural Resources; 1984.

Trade Assoc - Six Case Studies prepared for the National Solid Wastes Management Association; 1987.

Waste Mgmt - Baker, John A.; personal communication to Susan Mooney, U.S. Environmental Protection Agency, Office of Solid Waste; December 1, 1987.

7. Each Sample Analysis Number is unique and consists of a two-digit Site Number, followed by a hyphen, followed by a two-digit Sample Number. Each site has been assigned a unique Site Number, and each sample at a given site has been assigned a unique Sample Number for that site.

   Samples subjected to both inorganic and organic analyses appear once in the inorganics appendices and once in the organics appendices.

   Reported inorganic analyses of samples from the Wisconsin study are composite analyses calculated in that study. The reported values are the medians of actual values from two or more samples. Each of the Sample Numbers for these analyses consist of the Site Number followed by "comp," which denotes that the reported analysis is actually a composite of several samples.

# TABLES IN APPENDIX A

| Table | |
|---|---|
| A-1 | Inorganic Analyses from MSWLFs Started During 1980 or Earlier |
| A-2 | Organic Analyses from MSWLFs Started During 1980 or Earlier |
| A-3 | Inorganic Analyses for MSWLFs Started After 1980 |
| A-4 | Organic Analyses from MSWLFs Started After 1980 |
| A-5 | Inorganic Analyses from MSWLFs of Unknown Age |
| A-6 | Organic Analyses from MSWLFs of Unknown Age |
| A-7 | Inorganic Analyses from Hazardous Waste Landfills |
| A-8 | Organic Analyses from Hazardous Waste Landfills |

# TABLE A-1 INORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED DURING 1980 OR EARLIER

| SAMPLE NUMBER<br>DATE STARTED<br>DATA SOURCE | 02-01<br>1975<br>NUS | 02-02<br>1975<br>NUS | 02-03<br>1975<br>NUS | 14-01<br>1979<br>NUS | 14-02<br>1979<br>NUS | 14-03<br>1979<br>NUS | 18ccomp<br>1970<br>Wisconsin | 19ccomp<br>1959<br>Wisconsin | 20ccomp<br>1969<br>Wisconsin | 21ccomp<br>1966<br>Wisconsin |
|---|---|---|---|---|---|---|---|---|---|---|
| WATER QUALITY INDICATORS | | | | | | | | | | |
| ALKALINITY | 1700 | 1700 | 1700 | 1700 | 1700 | 1600 | 5350 | ** NA ** | 2405 | 2430 |
| AMMONIA | 230 | 230 | 220 | 53 | 70 | 79 | ** NA ** | 125.3 | ** NA ** | ** NA ** |
| BIOLOGICAL OXYGEN DEMAND | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 21600 | 101 | 6000 | 533.5 |
| CALCIUM | 150 | 174 | 146 | 272 | 263 | 250 | 1970 | ** NA ** | ** NA ** | ** NA ** |
| CHEMICAL OXYGEN DEMAND | 1000 | 1200 | 1200 | 470 | 520 | 690 | 50450 | 1120 | 1600 | 2090 |
| CHLORIDE | 600 | 660 | 660 | 570 | 500 | 570 | 885 | ** NA ** | 2651 | 759 |
| CONDUCTIVITY (umho/cm) | 300 | 300 | 300 | 3900 | 3900 | 3900 | 8103 | 9000 | 10620 | [illegible] |
| eH (mv) | 406 | 406 | 406 | 411 | 411 | 411 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| FLUORIDE | ND | ND | ND | ND | ND | ND | ** NA ** | .5 | ** NA ** | ** NA ** |
| GROSS ALPHA | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| GROSS BETA | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| HARDNESS | 720 | 670 | 690 | 1300 | 1300 | 1300 | 4160 | ** NA ** | 1550 | 1050 |
| IRON | 6.4 | 6.5 | 6.6 | 23.2 | 21.2 | 22.0 | 359 | 10.3 | 6.12 | 169 |
| NITRATE | -.1 | -.1 | -.1 | .1 | -.1 | .1 | 1.30 | .105 | .55 | ** NA ** |
| NITRITE | -.04 | -.04 | -.04 | -.04 | -.04 | -.04 | ** NA ** | .005 | ** NA ** | ** NA ** |
| NITROGEN (KJELDAHL) | 270 | 200 | 200 | 73 | 110 | 99 | ** NA ** | 167.5 | 240.5 | ** NA ** |
| NITROGEN (ORGANIC) | 40 | 50 | 60 | 20 | 40 | 20 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (TOTAL) | UNK | UNK | UNK | UNK | UNK | UNK | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| OIL & GREASE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| pH (ph units) | 7.0 | 7.0 | 7.0 | 6.90 | 6.90 | 6.90 | 5.7 | 6.05 | 6.92 | 6.0 |
| PHENOLICS, TOTAL | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| PHOSPHATE | UNK | UNK | UNK | UNK | UNK | UNK | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| PHOSPHORUS | 3.0 | 2.1 | 2.3 | .3 | .2 | .3 | ** NA ** | .325 | 1 | 1.31 |
| POTASSIUM | 217.0 | 220.7 | 199.6 | 145.2 | 270.4 | 260.6 | 1175 | 250 | ** NA ** | ** NA ** |
| SODIUM | 576 | 701.7 | 1334.2 | 552.5 | 552.5 | 681.0 | 1190 | ** NA ** | ** NA ** | ** NA ** |
| SULFATE | -20 | -4 | -4 | 420 | 390 | 420 | 155 | ** NA ** | 271.4 | ** NA ** |
| SULFIDE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SURFACTANT | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TEMPERATURE (Deg. Centigrade) | 10 | 10 | 10 | 9.6 | 9.6 | 9.6 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL DISSOLVED SOLIDS | 2730 | 2710 | 2760 | 3130 | 3110 | 3090 | 16120 | ** NA ** | 12666 | ** NA ** |
| TOTAL SUSPENDED SOLIDS | 44 | 32 | 76 | 94 | 82 | 88 | 1410 | 53 | 226 | 1605 |
| TOTAL ORGANIC CARBON | 259 | 237 | 245 | 130 | 140 | 140 | ** NA ** | ** NA ** | 640 | ** NA ** |
| TOTAL ORGANIC HALOGEN | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL SOLIDS | UNK | UNK | UNK | UNK | UNK | UNK | 16700 | ** NA ** | 10537 | ** NA ** |
| OTHER INORGANICS | | | | | | | | | | |
| ALUMINUM | ND | ND | 1.6 | ND | ND | ND | 5.07 | ** NA ** | ** NA ** | ** NA ** |
| ANTIMONY | ND | ND | ND | ND | ND | ND | ** NA ** | .0015 | .34 | ** NA ** |
| ARSENIC | .01 | .009 | .009 | .007 | .006 | .007 | ** NA ** | .009 | .015 | .07 |
| BARIUM | .41 | .34 | .34 | .40 | .55 | .40 | .3 | .04 | 1.3 | 2.69 |
| BERYLLIUM | ND | ND | ND | ND | ND | ND | ** NA ** | .0025 | ND | ** NA ** |
| BORON | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 7.13 | 3.924 | 1.19 | ** NA ** |
| CADMIUM | .002 | .003 | .002 | ND | ND | ND | ** NA ** | .0065 | .021 | .05 |
| CHROMIUM (HEXAVALENT) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ND | ** NA ** |
| CHROMIUM (TOTAL) | .006 | .005 | .009 | .003 | .002 | .003 | .520 | .03 | .31 | .23 |
| COBALT | ND | ND | ND | ND | ND | ND | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| COPPER | ND | ND | ND | ND | ND | ND | .321 | .02 | .049 | .3 |
| CYANIDE | ND | ND | ND | ND | ND | ND | ** NA ** | .004 | .01 | ** NA ** |
| LEAD | .009 | .015 | .006 | ND | ND | ND | ** NA ** | .069 | .29 | 1.11 |
| MANGANESE | 1.60 | 1.67 | 1.60 | .3 | .27 | .31 | 25.9 | .352 | 1.45 | ** NA ** |
| MAGNESIUM | 75 | 74 | 77 | 109 | 102 | 109 | 547 | ** NA ** | ** NA ** | ** NA ** |
| MERCURY | ND | ND | ND | ND | ND | ND | ** NA ** | .0001 | .0003 | ND |
| NICKEL | .13 | .13 | .13 | ND | .14 | .16 | ** NA ** | .105 | .29 | 0.3 |
| OSMIUM | ND | ND | ND | ND | ND | ND | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SELENIUM | ND | ND | ND | ND | ND | ND | ** NA ** | .0015 | .001 | .09 |
| SILVER | ND | ND | ND | ND | ND | ND | ** NA ** | .0075 | .013 | ND |
| STRONTIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| THALLIUM | ND | ND | ND | ND | ND | ND | ** NA ** | .009 | .007 | ** NA ** |
| TIN | ND | ND | ND | ND | ND | ND | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| VANADIUM | .023 | .024 | .02 | .013 | .011 | .014 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ZINC | .24 | .3 | .20 | .07 | .10 | .1 | 54 | .152 | 1.65 | 47.7 |

# TABLE A-1 INORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED DURING 1980 OR EARLIER (continued)

| SAMPLE NUMBER | 33comp | 34comp | 35comp | 36comp | 37comp | 38comp | 48-01 | 48-02 | 48-03 | 61-01 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | 1978 | 1978 | 1975 | 1977 | 1976 | 1978 | 1975 | 1975 | 1975 | 1973 |
| DATA SOURCE | Wisconsin | Wisconsin | Wisconsin | Wisconsin | Wisconsin | Wisconsin | NUS | NUS | NUS | Waste Mgmt |
| WATER QUALITY INDICATORS | | | | | | | | | | |
| ALKALINITY | ** NA ** | 2000 | 57050 | 4290 | 4390 | ** NA ** | 4100 | 4700 | 4700 | ** NA ** |
| AMMONIA | ** NA ** | ** NA ** | 517 | 170 | 209 | ** NA ** | 500 | 560 | 550 | 44.3 |
| BIOLOGICAL OXYGEN DEMAND | ** NA ** | ** NA ** | 5060 | ** NA ** | ** NA ** | 3500 | ** NA ** | ** NA ** | ** NA ** | 676 |
| CALCIUM | ** NA ** | 350 | ** NA ** | 2100 | ** NA ** | ** NA ** | 352 | 343 | 319 | ** NA ** |
| CHEMICAL OXYGEN DEMAND | 2060 | 15500 | 7370 | 33500 | 5220 | 9520 | 2400 | 2400 | 2400 | 1000 |
| CHLORIDE | 795 | 700 | 900 | 1770 | ** NA ** | 300 | 1600 | 1600 | 1600 | 233 |
| CONDUCTIVITY (umho/cm) | 6375 | 7000 | 10150 | 15100 | 6000 | 9250 | 10000 | 10000 | 10000 | 2230 |
| eH (ev) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 004 | 004 | 004 | ** NA ** |
| FLUORIDE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ND | ND | ND | .29 |
| GROSS ALPHA | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| GROSS BETA | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| HARDNESS | 1045 | 3900 | 3590 | 9300 | ** NA ** | ** NA ** | 1000 | 1100 | 1000 | ** NA ** |
| IRON | 46.65 | 1400 | 246 | 500 | ** NA ** | 150 | 16.3 | 17.6 | 16.4 | 31 |
| NITRATE | ** NA ** | ** NA ** | .21 | ** NA ** | ND | ** NA ** | -.1 | -.1 | -.1 | .01 |
| NITRITE | ** NA ** | ** NA ** | .112 | ** NA ** | ND | ** NA ** | -.04 | -.04 | -.04 | ** NA ** |
| NITROGEN (KJELDAHL) | ** NA ** | ** NA ** | 710 | ** NA ** | 235 | ** NA ** | 660 | 660 | 650 | 40.7 |
| NITROGEN (ORGANIC) | ** NA ** | ** NA ** | 4.5 | ** NA ** | ** NA ** | ** NA ** | 80 | 100 | 100 | ** NA ** |
| NITROGEN (TOTAL) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | UNK | UNK | UNK | ** NA ** |
| OIL & GREASE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| pH (pH units) | 6.6 | 5.9 | 7.21 | 5.4 | 7.1 | 6.15 | 7.05 | 7.05 | 7.05 | 6.05 |
| PHENOLICS, TOTAL | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 0.00015 |
| PHOSPHATE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | UNK | UNK | UNK | ** NA ** |
| PHOSPHORUS | ** NA ** | ** NA ** | 2.40 | ** NA ** | 4.6 | ** NA ** | 12 | 12 | 11 | ** NA ** |
| POTASSIUM | ** NA ** | 160 | ** NA ** | 400 | 31 | ** NA ** | 871.1 | 744 | 816.6 | ** NA ** |
| SODIUM | 500.5 | 570 | 12 | 1200 | ** NA ** | ** NA ** | 1293 | 1220.4 | 1510.5 | 220 |
| SULFATE | 100 | 210 | 500 | ** NA ** | ** NA ** | 200 | -4 | 220 | -4 | 104 |
| SULFIDE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SURFACTANT | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TEMPERATURE (Deg. Centigrade) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 25 | 25 | 25 | ** NA ** |
| TOTAL DISSOLVED SOLIDS | ** NA ** | 5400 | 12646 | ** NA ** | ** NA ** | ** NA ** | 4260 | 6100 | 5060 | ** NA ** |
| TOTAL SUSPENDED SOLIDS | ** NA ** | ** NA ** | 365 | ** NA ** | ** NA ** | 2035 | 166 | 160 | 104 | 322 |
| TOTAL ORGANIC CARBON | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 1000 | 923 | 810 | 360 |
| TOTAL ORGANIC HALOGEN | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 0.015 |
| TOTAL SOLIDS | ** NA ** | ** NA ** | 10700 | ** NA ** | 9300 | 25073 | UNK | UNK | UNK | ** NA ** |
| OTHER INORGANICS | | | | | | | | | | |
| ALUMINUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | .01 | 5.4 | 5.0 | 5 | ** NA ** |
| ANTIMONY | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ND | ND | ND | ND | -.08 |
| ARSENIC | ** NA ** | ND | ** NA ** | ** NA ** | ND | .001 | .023 | .019 | .023 | .009 |
| BARIUM | ** NA ** | ND | ** NA ** | ** NA ** | ** NA ** | 5 | .40 | .40 | .34 | .26 |
| BERYLLIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ND | ND | ND | ND | -.005 |
| BORON | ** NA ** | 5.1 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CADMIUM | ** NA ** | ND | ND | ** NA ** | .009 | .07 | .006 | .005 | .007 | -.005 |
| CHROMIUM (HEXAVALENT) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHROMIUM (TOTAL) | ** NA ** | ND | ** NA ** | ** NA ** | .06 | .05 | .012 | .012 | .01 | .013 |
| COBALT | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ND | ND | ND | ** NA ** |
| COPPER | ** NA ** | ND | ND | ** NA ** | .12 | .09 | ND | ND | ND | .027 |
| CYANIDE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | .003 | ND | ND | ND | -.03 |
| LEAD | ** NA ** | ND | ** NA ** | ** NA ** | .25 | .07 | 0.053 | .035 | .061 | .012 |
| MANGANESE | ** NA ** | 22 | 3.1 | ** NA ** | ** NA ** | 1.35 | 1.31 | 1.34 | 1.3 | 2.2 |
| MAGNESIUM | ** NA ** | 150 | ** NA ** | 700 | ** NA ** | ** NA ** | 125 | 117 | 116 | ** NA ** |
| MERCURY | ** NA ** | ND | ** NA ** | ** NA ** | .0003 | ** NA ** | ND | ND | ND | -.0003 |
| NICKEL | ** NA ** | ND | .2 | ** NA ** | .1 | .02 | ND | ND | ND | .042 |
| OSMIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ND | ND | ND | ** NA ** |
| SELENIUM | ** NA ** | ND | ** NA ** | ** NA ** | ** NA ** | ** NA ** | .006 | .006 | ND | .007 |
| SILVER | ** NA ** | ND | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ND | ND | ND | -.01 |
| STRONTIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| THALLIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | .31 | ND | ND | ND | -5 |
| TIN | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ND | ND | ND | ** NA ** |
| VANADIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | .009 | .011 | .021 | ** NA ** |
| ZINC | ** NA ** | 2.4 | 1.6 | ** NA ** | 3.13 | .04 | 2.32 | 2.59 | 2.39 | 1 |

# TABLE A-1 INORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED DURING 1980 OR EARLIER (continued)

| SAMPLE NUMBER | 61-02 | 61-03 | 62-03 | 62-04 | 63-01 | 63-02 | 63-03 | 63-04 | 63-05 | 63-06 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | 1973 | 1973 | 1973 | 1973 | 1979 | 1979 | 1979 | 1979 | 1979 | 1979 |
| DATA SOURCE | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt |
| WATER QUALITY INDICATORS | | | | | | | | | | |
| ALKALINITY | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| AMMONIA | 75.90 | 34.1 | ** NA ** | ** NA ** | 1100 | ** NA ** | 340 | 1100 | ** NA ** | 34 |
| BIOLOGICAL OXYGEN DEMAND | 1053 | 64 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 1150 |
| CALCIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHEMICAL OXYGEN DEMAND | 979 | 266 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 42400 | ** NA ** | 3700 |
| CHLORIDE | 520 | 364 | ** NA ** | ** NA ** | 1300 | 1500 | 650 | 1300 | ** NA ** | 150 |
| CONDUCTIVITY (umho/cm) | 4120 | 3700 | 36000 | 9700 | 10660 | ** NA ** | 8200 | ** NA ** | ** NA ** | ** NA ** |
| eH (mv) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| FLUORIDE | .26 | ** NA ** | ** NA ** | ** NA ** | .10 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| GROSS ALPHA | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| GROSS BETA | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| HARDNESS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| IRON | 51.2 | 15.4 | ** NA ** | ** NA ** | 2200 | ** NA ** | 896 | 1700 | ** NA ** | 320 |
| NITRATE | .00 | .95 | ** NA ** | ** NA ** | -.1 | ** NA ** | .07 | ** NA ** | ** NA ** | ** NA ** |
| NITRITE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (KJELDAHL) | 80.45 | 34.41 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (ORGANIC) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (TOTAL) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| OIL & GREASE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 2.0 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| pH (pH units) | 6.07 | 7.2 | 5.77 | 6.0 | 5.46 | 5.59 | 6.36 | 5.60 | ** NA ** | 5.79 |
| PHENOLICS, TOTAL | 0.00020 | 0.00012 | ** NA ** | ** NA ** | 0.019 | ** NA ** | 0.012 | 0.017 | ** NA ** | 0.00073 |
| PHOSPHATE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | .09 | ** NA ** | 1.2 |
| PHOSPHORUS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| POTASSIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SODIUM | 400.2 | 203.77 | ** NA ** | ** NA ** | 683 | ** NA ** | 710 | ** NA ** | ** NA ** | ** NA ** |
| SULFATE | 116 | 80 | ** NA ** | ** NA ** | 1400 | 1300 | 620 | 1300 | ** NA ** | 260 |
| SULFIDE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 0.00625 | -0.0002 | -0.00001 |
| SURFACTANT | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TEMPERATURE (Deg. Centigrade) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL DISSOLVED SOLIDS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL SUSPENDED SOLIDS | 276 | 85 | ** NA ** | ** NA ** | ** NA ** | 70 | ** NA ** | 810 | ** NA ** | 120 |
| TOTAL ORGANIC CARBON | 664 | 76 | ** NA ** | ** NA ** | 13000 | ** NA ** | 6600 | 1400 | ** NA ** | 1100 |
| TOTAL ORGANIC HALOGEN | 0.23 | ** NA ** | ** NA ** | ** NA ** | 0.455 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL SOLIDS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| OTHER INORGANICS | | | | | | | | | | |
| ALUMINUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ANTIMONY | ** NA ** | ** NA ** | -100 | -100 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ARSENIC | .011 | .01 | .01 | .009 | .31 | ** NA ** | .05 | .203 | ** NA ** | .12 |
| BARIUM | 1.33 | -.02 | ** NA ** | ** NA ** | .35 | ** NA ** | 1.2 | ** NA ** | ** NA ** | ** NA ** |
| BERYLLIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BORON | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CADMIUM | -.01 | -.01 | -.01 | -.01 | .02 | -.005 | -.01 | ** NA ** | ** NA ** | ** NA ** |
| CHROMIUM (HEXAVALENT) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -.05 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHROMIUM (TOTAL) | .051 | -.05 | .137 | -.05 | 1.704 | .76 | .562 | .69 | ** NA ** | .05 |
| COBALT | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| COPPER | .002 | .027 | ** NA ** | ** NA ** | ** NA ** | .04 | ** NA ** | .03 | ** NA ** | -.01 |
| CYANIDE | ** NA ** | ** NA ** | -.02 | -.02 | ** NA ** | -.01 | ** NA ** | -.01 | .3 | -.01 |
| LEAD | .015 | -.01 | .030 | .031 | .13 | .21 | .10 | .1 | ** NA ** | -.05 |
| MANGANESE | 4.7 | .91 | ** NA ** | ** NA ** | 79 | ** NA ** | 47.4 | 57 | ** NA ** | 22 |
| MAGNESIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| MERCURY | -.0005 | -.0005 | -.0005 | -.0005 | -.002 | -.0004 | -.0005 | ** NA ** | ** NA ** | ** NA ** |
| NICKEL | .304 | .100 | 2.227 | .194 | ** NA ** | ** NA ** | ** NA ** | .43 | ** NA ** | .06 |
| OSMIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SELENIUM | -.002 | -.002 | ** NA ** | ** NA ** | -.025 | ** NA ** | -.002 | -.02 | ** NA ** | -.01 |
| SILVER | -.02 | -.02 | ** NA ** | ** NA ** | .02 | ** NA ** | .035 | ** NA ** | ** NA ** | ** NA ** |
| STRONTIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| THALLIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TIN | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| VANADIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ZINC | 2.20 | .47 | ** NA ** | ** NA ** | ** NA ** | 24 | ** NA ** | 23 | ** NA ** | 3.2 |

## TABLE A-1 INORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED DURING 1980 OR EARLIER (continued)

| SAMPLE NUMBER | 64-01 | 64-02 | 64-03 | 64-04 | 65-01 | 65-02 | 65-03 | 65-04 | 65-05 | 65-06 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | 1970 | 1970 | 1970 | 1970 | 1971 | 1971 | 1971 | 1971 | 1971 | 1971 |
| DATA SOURCE | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt |
| WATER QUALITY INDICATORS | | | | | | | | | | |
| ALKALINITY | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| AMMONIA | 500 | 800 | 350 | 120 | ** NA ** | 184 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BIOLOGICAL OXYGEN DEMAND | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 4600 | 9200 | 2100 | 2740 | 6100 | 4000 |
| CALCIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHEMICAL OXYGEN DEMAND | ** NA ** | ** NA ** | 1000 | 410 | 12000 | 13600 | 2240 | 5040 | 6700 | 6760 |
| CHLORIDE | 1400 | 1970 | 173.5 | 193 | 640 | 35 | 155 | 470 | 301 | 422 |
| CONDUCTIVITY (umho/cm) | 11260 | 12900 | 10502 | 13477 | 7650 | ** NA ** | 1960 | 5951 | 4625 | 3710 |
| eH (mv) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| FLUORIDE | 1.1 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | .11 | ** NA ** | ** NA ** | ** NA ** |
| GROSS ALPHA | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| GROSS BETA | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| HARDNESS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| IRON | 6 | 66.2 | ** NA ** | ** NA ** | 321 | 1020 | 220 | 190 | 185 | 230 |
| NITRATE | -.1 | .1 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -.05 | ** NA ** | ** NA ** | ** NA ** |
| NITRITE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (KJELDAHL) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (ORGANIC) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (TOTAL) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| OIL & GREASE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| pH (pH units) | 8.5 | 7.23 | 8.52 | 12.5 | 5.7 | ** NA ** | 6.22 | 5.05 | 5.92 | 6.17 |
| PHENOLICS, TOTAL | 0.00041 | 0.00071 | ** NA ** | ** NA ** | 0.00290 | 0.00339 | 0.0009 | 0.002 | 0.0023 | 0.00002 |
| PHOSPHATE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| PHOSPHORUS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| POTASSIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SODIUM | 1030 | 1500 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 120 | ** NA ** | ** NA ** | ** NA ** |
| SULFATE | 190 | 41 | 200 | 140 | 890 | 1020 | 13.5 | 114 | 150 | 94 |
| SULFIDE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SURFACTANT | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TEMPERATURE (Deg. Centigrade) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL DISSOLVED SOLIDS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 6955 | 9360 | 2245 | 4640 | 4640 | 5010 |
| TOTAL SUSPENDED SOLIDS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 6470 | 1370 | 200 | 490 | 970 |
| TOTAL ORGANIC CARBON | 1200 | 665.0 | 385.0 | 129 | ** NA ** | ** NA ** | 630 | 1710 | 1700 | 4016 |
| TOTAL ORGANIC HALOGEN | 2.1 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL SOLIDS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| OTHER INORGANICS | | | | | | | | | | |
| ALUMINUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ANTIMONY | ** NA ** | ** NA ** | ** NA ** | ** NA ** | .6 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ARSENIC | .033 | .036 | ** NA ** | ** NA ** | .902 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BARIUM | .11 | .04 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 1.4 | ** NA ** | ** NA ** | ** NA ** |
| BERYLLIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -.01 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BORON | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CADMIUM | -.005 | -.01 | ** NA ** | ** NA ** | .05 | .15 | -.01 | .01 | .01 | -.01 |
| CHROMIUM (HEXAVALENT) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHROMIUM (TOTAL) | .060 | .063 | ** NA ** | ** NA ** | .29 | 1.9 | .06 | .09 | .110 | .07 |
| COBALT | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| COPPER | ** NA ** | ** NA ** | ** NA ** | ** NA ** | .25 | 2 | .49 | .05 | .05 | .07 |
| CYANIDE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | .12 | .24 | .02 | .02 | .03 | -.02 |
| LEAD | .012 | -.025 | ** NA ** | ** NA ** | .42 | 1.23 | -.1 | -.05 | -.05 | -.05 |
| MANGANESE | 1.19 | 4.95 | ** NA ** | ** NA ** | 13.5 | 35 | 3.7 | 6.2 | 6.2 | 5.7 |
| MAGNESIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| MERCURY | -.001 | -.0003 | ** NA ** | ** NA ** | .0029 | .0032 | -.003 | -.0003 | -.001 | -.002 |
| NICKEL | ** NA ** | ** NA ** | ** NA ** | ** NA ** | .40 | 1.0 | .260 | 1.4 | .270 | .230 |
| OSMIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SELENIUM | -.005 | -.025 | ** NA ** | ** NA ** | -.05 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SILVER | -.01 | -.016 | ** NA ** | ** NA ** | -.02 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| STRONTIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| THALLIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | .4 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TIN | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -1 | 2 | -1 | -1 | -1 | -1 |
| VANADIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ZINC | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 10 | 73 | ** NA ** | 350 | 4 | 4.7 |

## TABLE A-1 INORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED DURING 1980 OR EARLIER (continued)

| SAMPLE NUMBER | 65-07 | 65-08 | 65-09 | 65-10 | 65-11 | 65-12 | 65-13 | 65-14 | 65-15 | 65-16 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | 1971 | 1971 | 1971 | 1971 | 1971 | 1971 | 1971 | 1971 | 1971 | 1971 |
| DATA SOURCE | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt |
| WATER QUALITY INDICATORS | | | | | | | | | | |
| ALKALINITY | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| AMMONIA | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BIOLOGICAL OXYGEN DEMAND | 6000 | 11000 | ** NA ** | 10300 | 5100 | ** NA ** | 950 | 1100 | 2600 | 2400 |
| CALCIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHEMICAL OXYGEN DEMAND | 6300 | 6730 | ** NA ** | 7190 | 9100 | -20 | 1600 | 2000 | 3940 | 3000 |
| CHLORIDE | 156 | 360 | ** NA ** | 377 | 420 | 440 | 140 | 120 | 210 | 54 |
| CONDUCTIVITY (umho/cm) | 6034 | 5600 | ** NA ** | 5690 | 6624 | 2400 | 1700 | 1370 | 3100 | 2825 |
| pH (av) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| FLUORIDE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| GROSS ALPHA | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| GROSS BETA | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| HARDNESS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| IRON | 200 | 220 | ** NA ** | 250 | 500 | 270 | 110 | 52 | 140 | 190 |
| NITRATE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITRITE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (KJELDAHL) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (ORGANIC) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (TOTAL) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| OIL & GREASE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| pH (pH units) | 6.25 | 6.37 | ** NA ** | 6.20 | 6.41 | 6.16 | 6.39 | 5.79 | 6.24 | 5.9 |
| PHENOLICS, TOTAL | 0.00163 | 0.00293 | ** NA ** | 0.00235 | 0.00199 | 0.00295 | 0.00063 | 0.00042 | 0.00026 | 0.00138 |
| PHOSPHATE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| PHOSPHORUS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| POTASSIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SODIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SULFATE | 75 | 120 | ** NA ** | 05 | 92 | ** NA ** | 55 | 140 | 15 | -10 |
| SULFIDE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SURFACTANT | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TEMPERATURE (Deg. Centigrade) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL DISSOLVED SOLIDS | 3400 | 5325 | ** NA ** | 5100 | 5100 | 5200 | 1900 | 1700 | 3200 | 5600 |
| TOTAL SUSPENDED SOLIDS | 1600 | 030 | ** NA ** | 250 | 17000 | 650 | 450 | 110 | 710 | 250 |
| TOTAL ORGANIC CARBON | 2040 | 2220 | ** NA ** | 2040 | 1000 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL ORGANIC HALOGEN | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL SOLIDS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| OTHER INORGANICS | | | | | | | | | | |
| ALUMINUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ANTIMONY | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ARSENIC | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BARIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BERYLLIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BORON | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CADMIUM | -.05 | -.01 | ** NA ** | -.01 | .03 | -.01 | -.01 | -.01 | .045 | -.01 |
| CHROMIUM (HEXAVALENT) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHROMIUM (TOTAL) | -.25 | .09 | ** NA ** | .11 | .45 | .052 | -.05 | -.05 | -.05 | -.05 |
| COBALT | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| COPPER | -.25 | .06 | ** NA ** | .17 | .61 | .040 | .067 | -.05 | -.05 | -.05 |
| CYANIDE | .02 | -.02 | ** NA ** | -.02 | -.02 | -.02 | -.02 | -.02 | -.02 | -.02 |
| LEAD | -.25 | -.05 | ** NA ** | -.05 | .29 | -.05 | -.05 | -.05 | -.05 | -.05 |
| MANGANESE | 1.6 | 5.4 | ** NA ** | 5 | 11 | 5.4 | 2.6 | 2.5 | 4.6 | 3.6 |
| MAGNESIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| MERCURY | .0090 | .00037 | ** NA ** | -.0003 | -.001 | -.0005 | -.0005 | -.0005 | -.0005 | -.0005 |
| NICKEL | -.25 | .16 | ** NA ** | .10 | .55 | .110 | .10 | .110 | .12 | .14 |
| OSMIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SELENIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SILVER | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| STRONTIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| THALLIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TIN | -5 | -1 | ** NA ** | -1 | -1 | -1 | -1 | -1 | -1 | -1 |
| VANADIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ZINC | 7.6 | .06 | ** NA ** | 2.5 | 31 | 1.3 | .51 | 1.6 | 3.3 | 1.2 |

## TABLE A-1 INORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED DURING 1980 OR EARLIER (continued)

| SAMPLE NUMBER | 65-17 | 65-18 | 65-19 | 65-20 | 65-21 | 65-22 | 65-23 | 65-24 | 65-25 | 65-26 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | 1971 | 1971 | 1971 | 1971 | 1971 | 1971 | 1971 | 1971 | 1971 | 1971 |
| DATA SOURCE | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt |
| WATER QUALITY INDICATORS | | | | | | | | | | |
| ALKALINITY | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| AMMONIA | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BIOLOGICAL OXYGEN DEMAND | 3500 | 1500 | 640 | 4200 | 2700 | 2600 | 2400 | 2400 | 1970 | 2100 |
| CALCIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHEMICAL OXYGEN DEMAND | 3400 | 2300 | 3600 | 5100 | 3100 | 3900 | 3400 | 300 | 2000 | 3300 |
| CHLORIDE | 340 | 200 | 320 | 470 | 330 | 290 | 250 | 31 | 405 | 430 |
| CONDUCTIVITY (umho/cm) | 4465 | 3175 | 3900 | 2905 | 2025 | 3450 | 3013 | 2290 | 1600 | 4550 |
| eH (mv) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| FLUORIDE | .65 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| GROSS ALPHA | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| GROSS BETA | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| HARDNESS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| IRON | 170 | 107 | 1000 | 200 | 77 | 130 | 192 | 134 | 90.2 | 153 |
| NITRATE | -.1 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITRITE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (KJELDAHL) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (ORGANIC) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (TOTAL) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| OIL & GREASE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| pH (pH units) | 6.45 | 6.40 | 6.6 | 6.4 | 6.35 | 6.45 | 6.67 | 7.01 | 6.5 | 6.00 |
| PHENOLICS, TOTAL | 0.00106 | 0.0011 | ** NA ** | 0.0033 | 0.0015 | 0.0021 | 0.0012 | 0.00107 | 0.0012 | 0.00001 |
| PHOSPHATE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| PHOSPHORUS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| POTASSIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SODIUM | 760 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SULFATE | 14 | -10 | 170 | 40 | 65 | -5 | 66 | -64 | 110 | 150 |
| SULFIDE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SURFACTANT | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TEMPERATURE (Deg. Centigrade) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL DISSOLVED SOLIDS | 4100 | 3400 | 3500 | 4900 | 3000 | 3000 | 3100 | 3000 | 3400 | 390 |
| TOTAL SUSPENDED SOLIDS | 350 | 400 | 13000 | 400 | 1100 | 23 | 320 | 230 | 250 | 560 |
| TOTAL ORGANIC CARBON | 1200 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL ORGANIC HALOGEN | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL SOLIDS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| OTHER INORGANICS | | | | | | | | | | |
| ALUMINUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ANTIMONY | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ARSENIC | .007 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BARIUM | 2 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BERYLLIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BORON | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CADMIUM | -.01 | -.01 | -.01 | -.01 | -.01 | -.01 | -.01 | -.01 | -.01 | -.01 |
| CHROMIUM (HEXAVALENT) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHROMIUM (TOTAL) | -.05 | -.05 | 1.5 | -.05 | -.05 | -.05 | -.05 | -.05 | -.05 | -.05 |
| COBALT | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| COPPER | -.02 | .065 | 2.0 | -.02 | .02 | -.02 | .29 | -.02 | -.02 | .026 |
| CYANIDE | -.02 | -.02 | .01 | -.01 | -.01 | .02 | -.01 | -.02 | -.02 | -.02 |
| LEAD | -.05 | -.05 | 1.6 | -.05 | .005 | -.05 | -.05 | -.05 | -.05 | .140 |
| MANGANESE | 3 | 4.1 | 45 | 3.4 | 2.6 | 3.2 | 2.91 | 4.01 | 3.33 | 3.35 |
| MAGNESIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| MERCURY | -.0005 | -.0005 | -.0005 | -.0005 | -.0005 | -.0005 | -.0005 | -.0005 | -.0005 | -.0005 |
| NICKEL | -.05 | .16 | 1.7 | .13 | .076 | .16 | .264 | .251 | .001 | .250 |
| OSMIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SELENIUM | -.002 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SILVER | -.01 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| STRONTIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -1 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| THALLIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TIN | -2 | ** NA ** | ** NA ** | -1 | ** NA ** | -1 | -.01 | -.01 | -.05 | -.01 |
| VANADIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ZINC | .05 | -.01 | 22 | .55 | .49 | .66 | .51 | 1.34 | 1.33 | .03 |

## TABLE A-1 INORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED DURING 1980 OR EARLIER (continued)

| SAMPLE NUMBER | 65-27 | 65-28 | 65-29 | 65-30 | 68-01 | 68-02 | 68-03 | 68-04 | 69-01 | 71-01 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | 1971 | 1971 | 1971 | 1971 | 1979 | 1979 | 1979 | 1979 | 1960 | 1960 |
| DATA SOURCE | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt |
| WATER QUALITY INDICATORS | | | | | | | | | | |
| ALKALINITY | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| AMMONIA | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 52 | 112 | 177.7 | 151.85 | ** NA ** | 1.6 |
| BIOLOGICAL OXYGEN DEMAND | 2000 | 4700 | 1960 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CALCIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 284 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHEMICAL OXYGEN DEMAND | 2300 | 6900 | 2700 | ** NA ** | 390 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHLORIDE | 490 | 550 | 210 | ** NA ** | 270 | 609 | 676 | 882 | 192 | 952 |
| CONDUCTIVITY (umho/cm) | 4075 | 4575 | 2975 | ** NA ** | 2000 | 4200 | 3195 | 7900 | ** NA ** | 3970 |
| eH (mv) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| FLUORIDE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | .37 | .27 | ** NA ** | ** NA ** | ** NA ** |
| GROSS ALPHA | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| GROSS BETA | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| HARDNESS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| IRON | 17.9 | 201 | 116 | ** NA ** | 7.94 | 10 | 96.5 | 13.11 | 39.0 | 64.4 |
| NITRATE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -.02 | ** NA ** | -.01 | .13 | .55 | .5 |
| NITRITE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (KJELDAHL) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 59.25 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (ORGANIC) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (TOTAL) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| OIL & GREASE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| pH (pH units) | 6.44 | 6.67 | 6.15 | ** NA ** | 7.23 | 7.15 | 7.4 | 7.77 | ** NA ** | 6.87 |
| PHENOLICS, TOTAL | 0.00091 | 0.00250 | 0.0013 | ** NA ** | ** NA ** | 0.0000 | 0.00241 | 0.00003 | 0.00575 | 0.00856 |
| PHOSPHATE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| PHOSPHORUS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| POTASSIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SODIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 150 | 440 | 728.9 | 505.64 | 704 | 776 |
| SULFATE | -10 | 10 | 57 | ** NA ** | 100 | ** NA ** | 26 | -10 | 310 | 94 |
| SULFIDE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SURFACTANT | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TEMPERATURE (Deg. Centigrade) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL DISSOLVED SOLIDS | 4200 | 5600 | 2900 | ** NA ** | 2010 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL SUSPENDED SOLIDS | 140 | 350 | 81 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL ORGANIC CARBON | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 110 | 1440 | 1790 | 135 | ** NA ** | 750 |
| TOTAL ORGANIC HALOGEN | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 0.0005 | 0.09 | ** NA ** | ** NA ** | ** NA ** |
| TOTAL SOLIDS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| OTHER INORGANICS | | | | | | | | | | |
| ALUMINUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ANTIMONY | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ARSENIC | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -.01 | ** NA ** | .029 | .007 | 0.016 | .025 |
| BARIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | .67 | .95 | .85 | .35 | .28 |
| BERYLLIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BORON | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CADMIUM | -.01 | -.01 | -.01 | ** NA ** | ** NA ** | ** NA ** | -.01 | -.010 | -.01 | -.005 |
| CHROMIUM (HEXAVALENT) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHROMIUM (TOTAL) | -.05 | -.05 | -.05 | ** NA ** | ** NA ** | .022 | .107 | -.050 | .073 | .042 |
| COBALT | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| COPPER | .031 | .041 | .026 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CYANIDE | ** NA ** | -.02 | -.02 | ** NA ** | -.01 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| LEAD | -.05 | -.05 | -.05 | ** NA ** | -.01 | ** NA ** | .012 | -.01 | .162 | -.01 |
| MANGANESE | 6.3 | 7.94 | 5.02 | ** NA ** | ** NA ** | .57 | 6.65 | .22 | 3.91 | 5.82 |
| MAGNESIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| MERCURY | -.0005 | -.0005 | -.0005 | ** NA ** | ** NA ** | ** NA ** | -.0005 | -.0005 | -.0005 | -.0003 |
| NICKEL | .157 | .160 | .095 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| OSMIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SELENIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -.002 | -.002 | -.002 | -.005 |
| SILVER | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | .025 | -.02 | -.01 | -.01 |
| STRONTIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| THALLIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TIN | -.01 | -.01 | -.01 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| VANADIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ZINC | .23 | .14 | .05 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |

## TABLE A-1 INORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED DURING 1980 OR EARLIER (continued)

| SAMPLE NUMBER | 72-01 | 72-02 | 73-01 | 73-02 | 73-03 | 73-04 | 73-05 | 73-06 | 73-07 | 73-08 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | 1977 | 1977 | 1973 | 1973 | 1973 | 1973 | 1973 | 1973 | 1973 | 1973 |
| DATA SOURCE | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt |
| WATER QUALITY INDICATORS | | | | | | | | | | |
| ALKALINITY | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| AMMONIA | ** NA ** | ** NA ** | 394 | ** NA ** | ** NA ** | ** NA ** | 237 | ** NA ** | ** NA ** | ** NA ** |
| BIOLOGICAL OXYGEN DEMAND | ** NA ** | ** NA ** | ** NA ** | 3000 | ** NA ** | 9000 | 2043 | 11000 | 14400 | 1064 |
| CALCIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHEMICAL OXYGEN DEMAND | ** NA ** | ** NA ** | 1110 | 4340 | ** NA ** | 7100 | ** NA ** | 13000 | 9800 | 2985 |
| CHLORIDE | ** NA ** | 1620 | 1150 | 1200 | ** NA ** | 1000 | ** NA ** | 640 | 620 | ** NA ** |
| CONDUCTIVITY (umho/cm) | ** NA ** | 12690 | 9000 | 8750 | ** NA ** | 4020 | ** NA ** | 5450 | 5100 | ** NA ** |
| eH (mv) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| FLUORIDE | ** NA ** | ** NA ** | 1.1 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| GROSS ALPHA | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| GROSS BETA | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| HARDNESS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| IRON | ** NA ** | 34.4 | 35 | 32 | 29 | 490 | ** NA ** | 370 | 477 | 70.0 |
| NITRATE | ** NA ** | -.1 | .15 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITRITE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (KJELDAHL) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (ORGANIC) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (TOTAL) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| OIL & GREASE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| pH (pH units) | ** NA ** | 7.29 | 7.0 | 7.05 | ** NA ** | 5.96 | ** NA ** | 5.92 | 6.65 | ** NA ** |
| PHENOLICS, TOTAL | ** NA ** | 0.00212 | 0.00006 | 0.00004 | 0.00001 | 0.002 | ** NA ** | 0.0026 | 0.0026 | 0.00056 |
| PHOSPHATE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| PHOSPHORUS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| POTASSIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SODIUM | ** NA ** | 1050 | 870 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SULFATE | ** NA ** | 72 | 57 | 80 | ** NA ** | 300 | ** NA ** | 1200 | 200 | ** NA ** |
| SULFIDE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 0.009 |
| SURFACTANT | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TEMPERATURE (Deg. Centigrade) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL DISSOLVED SOLIDS | ** NA ** | ** NA ** | ** NA ** | 4900 | ** NA ** | 9700 | ** NA ** | 9200 | 6500 | ** NA ** |
| TOTAL SUSPENDED SOLIDS | ** NA ** | ** NA ** | 100 | 440 | ** NA ** | 1000 | 60 | 260 | 360 | 3535 |
| TOTAL ORGANIC CARBON | ** NA ** | 1201 | 490 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL ORGANIC HALOGEN | ** NA ** | ** NA ** | 0.70 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL SOLIDS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| OTHER INORGANICS | | | | | | | | | | |
| ALUMINUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ANTIMONY | ** NA ** | ** NA ** | ** NA ** | -.25 | -.5 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -.05 |
| ARSENIC | .020 | .024 | -.002 | -.01 | -.01 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -.005 |
| BARIUM | .56 | .30 | .7 | ** NA ** | .03 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BERYLLIUM | ** NA ** | ** NA ** | ** NA ** | -.005 | -.01 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -.005 |
| BORON | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CADMIUM | -.02 | -.005 | -.01 | -.01 | -.01 | -.01 | -.005 | -.01 | -.01 | -.005 |
| CHROMIUM (HEXAVALENT) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -.01 |
| CHROMIUM (TOTAL) | .490 | .071 | -.05 | -.05 | .053 | .07 | -.005 | ** NA ** | ** NA ** | -.01 |
| COBALT | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| COPPER | ** NA ** | ** NA ** | ** NA ** | -.05 | -.05 | .035 | .240 | .033 | .021 | .063 |
| CYANIDE | ** NA ** | ** NA ** | -.02 | -.02 | .05 | -.02 | -.01 | -.01 | -.02 | ** NA ** |
| LEAD | .055 | .005 | -.05 | .059 | .075 | -.05 | -.005 | -.05 | .12 | .03 |
| MANGANESE | ** NA ** | 3.06 | .60 | .61 | 1.6 | 19 | ** NA ** | 16.9 | 16.1 | ** NA ** |
| MAGNESIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| MERCURY | -.0003 | .0039 | -.0005 | -.0005 | -.0005 | -.005 | ** NA ** | -.0005 | -.0005 | -.0002 |
| NICKEL | ** NA ** | ** NA ** | ** NA ** | .21 | .2 | .420 | .16 | .6 | .439 | .173 |
| OSMIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SELENIUM | -.005 | -.005 | -.002 | ** NA ** | -.002 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -.005 |
| SILVER | -.05 | -.013 | .012 | ** NA ** | -.01 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -.01 |
| STRONTIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| THALLIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -.5 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -.01 |
| TIN | ** NA ** | ** NA ** | ** NA ** | -1 | ** NA ** | -10 | ** NA ** | -.01 | .23 | ** NA ** |
| VANADIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ZINC | ** NA ** | ** NA ** | ** NA ** | .51 | .56 | 4.7 | .29 | 9.62 | 7.98 | .40 |

## TABLE A-1 INORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED DURING 1980 OR EARLIER (continued)

| SAMPLE NUMBER | 73-09 | 73-10 | 73-11 | 75-01 | 75-02 | 75-03 | 77-01 | 78-01 | 78-02 | 78-03 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | 1973 | 1973 | 1973 | 1959 | 1959 | 1959 | 1965 | 1962 | 1962 | 1962 |
| DATA SOURCE | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt |
| WATER QUALITY INDICATORS | | | | | | | | | | |
| ALKALINITY | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| AMMONIA | 320 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BIOLOGICAL OXYGEN DEMAND | ** NA ** | 600 | 370 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CALCIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 170 | ** NA ** | ** NA ** | ** NA ** |
| CHEMICAL OXYGEN DEMAND | 4300 | 2096 | 640 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 530 | 320 | 590 |
| CHLORIDE | 920 | ** NA ** | 410 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CONDUCTIVITY (umho/cm) | 5500 | ** NA ** | 3300 | ** NA ** | ** NA ** | ** NA ** | 1932 | 6150 | 3950 | 6150 |
| eH (av) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| FLUORIDE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| GROSS ALPHA | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -0.03 | ** NA ** | ** NA ** | ** NA ** |
| GROSS BETA | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -0.03 | ** NA ** | ** NA ** | ** NA ** |
| HARDNESS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| IRON | 87.3 | 57.9 | 36.6 | ** NA ** | ** NA ** | ** NA ** | 51.2 | ** NA ** | ** NA ** | ** NA ** |
| NITRATE | .08 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITRITE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (KJELDAHL) | ** NA ** | 39.1 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (ORGANIC) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (TOTAL) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| OIL & GREASE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| pH (ph units) | 6.65 | ** NA ** | 6.9 | ** NA ** | ** NA ** | ** NA ** | 6.54 | 6.69 | 6.47 | 6.69 |
| PHENOLICS, TOTAL | 0.001 | ** NA ** | 0.00023 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 0.00001 | 0.00001 | 0.00001 |
| PHOSPHATE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| PHOSPHORUS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| POTASSIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 17.0 | ** NA ** | ** NA ** | ** NA ** |
| SODIUM | 590 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 221 | ** NA ** | ** NA ** | ** NA ** |
| SULFATE | 72 | ** NA ** | 17 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SULFIDE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SURFACTANT | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TEMPERATURE (Deg. Centigrade) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL DISSOLVED SOLIDS | 6300 | ** NA ** | 2000 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL SUSPENDED SOLIDS | 350 | 300 | 94 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 61 | 53 | 68 |
| TOTAL ORGANIC CARBON | 1500 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL ORGANIC HALOGEN | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL SOLIDS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| OTHER INORGANICS | | | | | | | | | | |
| ALUMINUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 1.6 | ** NA ** | ** NA ** | ** NA ** |
| ANTIMONY | ** NA ** | -.06 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -10 | ** NA ** | ** NA ** | ** NA ** |
| ARSENIC | .015 | -.01 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | .017 | .013 | .009 | .006 |
| BARIUM | -.1 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 3.4 | ** NA ** | ** NA ** | ** NA ** |
| BERYLLIUM | ** NA ** | -.005 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -.005 | ** NA ** | ** NA ** | ** NA ** |
| BORON | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CADMIUM | -.01 | -.005 | -.01 | ** NA ** | ** NA ** | ** NA ** | -.005 | .02 | -.01 | -.01 |
| CHROMIUM (HEXAVALENT) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHROMIUM (TOTAL) | -.05 | .045 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | .022 | .06 | -.02 | -.02 |
| COBALT | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -.05 | .07 | .08 | -.02 |
| COPPER | .040 | -.025 | .023 | ** NA ** | ** NA ** | ** NA ** | -.02 | -.02 | -.02 | .02 |
| CYANIDE | -.02 | ** NA ** | -.02 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -.02 | -.02 | .02 |
| LEAD | -.05 | .039 | -.05 | ** NA ** | ** NA ** | ** NA ** | .072 | -.05 | -.05 | -.05 |
| MANGANESE | .7 | ** NA ** | 1.91 | ** NA ** | ** NA ** | ** NA ** | 34.6 | ** NA ** | ** NA ** | ** NA ** |
| MAGNESIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 120 | ** NA ** | ** NA ** | ** NA ** |
| MERCURY | -.0005 | -.0002 | -.0005 | ** NA ** | ** NA ** | ** NA ** | -.0002 | ** NA ** | ** NA ** | ** NA ** |
| NICKEL | .10 | .172 | .1 | ** NA ** | ** NA ** | ** NA ** | .100 | .15 | .08 | .16 |
| OSMIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SELENIUM | -.002 | -.005 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -.002 | -.005 | -.005 | -.005 |
| SILVER | -.01 | -.01 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -.01 | ** NA ** | ** NA ** | ** NA ** |
| STRONTIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| THALLIUM | ** NA ** | -.01 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | .05 | ** NA ** | ** NA ** | ** NA ** |
| TIN | -.01 | ** NA ** | -10 | ** NA ** | ** NA ** | ** NA ** | -.01 | ** NA ** | ** NA ** | ** NA ** |
| VANADIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -.05 | ** NA ** | ** NA ** | ** NA ** |
| ZINC | .60 | .9 | .05 | ** NA ** | ** NA ** | ** NA ** | .09 | .10 | .07 | -.02 |

## TABLE A-1 INORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED DURING 1980 OR EARLIER (continued)

| SAMPLE NUMBER | 78-04 | 78-05 | 78-06 | 78-07 | 78-08 | 78-09 | 78-10 |
|---|---|---|---|---|---|---|---|
| DATE STARTED | 1962 | 1962 | 1962 | 1962 | 1962 | 1962 | 1962 |
| DATA SOURCE | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt |
| WATER QUALITY INDICATORS | | | | | | | |
| ALKALINITY | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| AMMONIA | 110 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BIOLOGICAL OXYGEN DEMAND | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CALCIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHEMICAL OXYGEN DEMAND | ** NA ** | 610 | ** NA ** | 560 | 400 | 410 | 690 |
| CHLORIDE | 940 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CONDUCTIVITY (umho/cm) | 7000 | 5900 | 4400 | 6000 | 4000 | 5300 | 7400 |
| eH (mv) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| FLUORIDE | .2 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| GROSS ALPHA | -0.0056 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| GROSS BETA | 0.123 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| HARDNESS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| IRON | 25.7 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITRATE | .14 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITRITE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (KJELDAHL) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (ORGANIC) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (TOTAL) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| OIL & GREASE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| pH (pH units) | 6.6 | 6.52 | 6.4 | 6.5 | 6.37 | 6.54 | 6.75 |
| PHENOLICS, TOTAL | 0.00002 | 0.00001 | ** NA ** | 0.00003 | 0.00002 | 0.00002 | 0.00001 |
| PHOSPHATE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| PHOSPHORUS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| POTASSIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SODIUM | 460 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SULFATE | 20 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SULFIDE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SURFACTANT | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TEMPERATURE (Deg. Centigrade) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL DISSOLVED SOLIDS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL SUSPENDED SOLIDS | ** NA ** | 40 | ** NA ** | 60 | 84 | 100 | 52 |
| TOTAL ORGANIC CARBON | ** NA ** | ** NA ** | 74 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL ORGANIC HALOGEN | ** NA ** | ** NA ** | 0.4227 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL SOLIDS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| OTHER INORGANICS | | | | | | | |
| ALUMINUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ANTIMONY | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -.05 | ** NA ** |
| ARSENIC | .0034 | .010 | ** NA ** | .016 | .009 | .010 | .017 |
| BARIUM | 2.5 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BERYLLIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -.01 | ** NA ** |
| BORON | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CADMIUM | .01 | -.01 | ** NA ** | -.01 | -.01 | -.01 | .02 |
| CHROMIUM (HEXAVALENT) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHROMIUM (TOTAL) | .06 | .03 | ** NA ** | .02 | .02 | .03 | -.02 |
| COBALT | ** NA ** | .13 | ** NA ** | -.05 | .13 | -.01 | ** NA ** |
| COPPER | ** NA ** | -.02 | ** NA ** | -.02 | -.02 | -.02 | .02 |
| CYANIDE | ** NA ** | .05 | ** NA ** | -.02 | -.02 | -.02 | -.02 |
| LEAD | .26 | -.05 | ** NA ** | .05 | -.05 | -.05 | .21 |
| MANGANESE | .66 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| MAGNESIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| MERCURY | -.0005 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -.0005 | ** NA ** |
| NICKEL | ** NA ** | -.02 | ** NA ** | .04 | .04 | .03 | .14 |
| OSMIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SELENIUM | .0034 | -.005 | ** NA ** | -.005 | -.005 | -.005 | -.005 |
| SILVER | .01 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -.02 | ** NA ** |
| STRONTIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| THALLIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | .06 | ** NA ** |
| TIN | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| VANADIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ZINC | ** NA ** | .1 | ** NA ** | .14 | .06 | .12 | .26 |

# TABLE A-1 INORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED DURING 1980 OR EARLIER (continued)

| SAMPLE NUMBER | 22comp | 23comp | 24comp | 25comp | 26comp | 28comp | 29comp | 30comp | 31comp | 32comp |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | 1971 | 1980 | 1969 | 1978 | 1976 | 1975 | 1978 | 1969 | 1977 | 1976 |
| DATA SOURCE | Wisconsin | Wisconsin | Wisconsin | Wisconsin | Wisconsin | Wisconsin | Wisconsin | Wisconsin | Wisconsin | Wisconsin |
| WATER QUALITY INDICATORS | | | | | | | | | | |
| ALKALINITY | 6045 | ** NA ** | 2650 | ** NA ** | ** NA ** | 6360 | 960 | 2075 | 1504 | 2770 |
| AMMONIA | 557 | 410 | 34 | ** NA ** | ** NA ** | 336 | 26.00 | ** NA ** | ** NA ** | 220 |
| BIOLOGICAL OXYGEN DEMAND | 29200 | 2360 | 740 | 630 | 12000 | 1645 | 1150 | 3000 | 3040 | 8236 |
| CALCIUM | ** NA ** | ** NA ** | 200 | ** NA ** | ** NA ** | 321 | ** NA ** | ** NA ** | ** NA ** | 425 |
| CHEMICAL OXYGEN DEMAND | 15900 | 2640 | 3520 | 1156 | ** NA ** | 2110 | 2635 | 5700 | 3365 | 8530 |
| CHLORIDE | 2270 | ** NA ** | 350 | ** NA ** | ** NA ** | 1400 | 100 | 923 | 840 | 1040 |
| CONDUCTIVITY (umho/cm) | 13750 | ** NA ** | 3540 | 5004 | ** NA ** | 15405 | 2040 | 10005 | 4390 | 7635 |
| eH (mv) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| FLUORIDE | .2 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| GROSS ALPHA | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| GROSS BETA | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| HARDNESS | 4305 | ** NA ** | 1401 | ** NA ** | ** NA ** | 2240 | 1700 | 2096 | 1025 | 3670 |
| IRON | 113 | ** NA ** | 2.1 | ** NA ** | 305 | 15.05 | 66.2 | 211 | 4 | 29.5 |
| NITRATE | .12 | .14 | 1.4 | ** NA ** | ** NA ** | ND | .75 | .125 | ** NA ** | ND |
| NITRITE | ND | .01 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (KJELDAHL) | 1470 | 439.5 | ** NA ** | ** NA ** | ** NA ** | 309 | 46.61 | 47.2 | ** NA ** | ** NA ** |
| NITROGEN (ORGANIC) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (TOTAL) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| OIL & GREASE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 90 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| pH (pH units) | 6.50 | ** NA ** | 6.5 | 6.32 | 6.3 | 7.10 | 6.60 | 6.7 | 6.4 | 6.45 |
| PHENOLICS, TOTAL | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| PHOSPHATE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| PHOSPHORUS | 5.35 | 117.10 | .52 | ** NA ** | ** NA ** | 1.00 | ** NA ** | 3.0 | ** NA ** | 1.31 |
| POTASSIUM | 700 | 107.5 | 75 | ** NA ** | ** NA ** | 560 | ** NA ** | ** NA ** | ** NA ** | 46.5 |
| SODIUM | 1630 | ** NA ** | ** NA ** | NA | ** NA ** | ** NA ** | ** NA ** | 771.4 | 321 | 500 |
| SULFATE | 200 | ** NA ** | 112 | ** NA ** | ** NA ** | 255 | 100 | 8.4 | ** NA ** | ** NA ** |
| SULFIDE | 2.40 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SURFACTANT | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TEMPERATURE (Deg. Centigrade) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL DISSOLVED SOLIDS | ** NA ** | ** NA ** | 2100 | ** NA ** | ** NA ** | 7676 | ** NA ** | ** NA ** | 4170 | 9300 |
| TOTAL SUSPENDED SOLIDS | 790 | 275 | 20 | 140 | 650 | 260 | ** NA ** | 330 | ** NA ** | 156 |
| TOTAL ORGANIC CARBON | 5090 | ** NA ** | 427 | ** NA ** | ** NA ** | 406 | ** NA ** | 1123 | ** NA ** | ** NA ** |
| TOTAL ORGANIC HALOGEN | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL SOLIDS | 33050 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 5060 |
| OTHER INORGANICS | | | | | | | | | | |
| ALUMINUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | .31 | ** NA ** | ND |
| ANTIMONY | .066 | .009 | ** NA ** | .56 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ARSENIC | .225 | .015 | ND | .0002 | ** NA ** | ND | ND | .002 | ** NA ** | ** NA ** |
| BARIUM | 1.3 | .6 | ** NA ** | ** NA ** | ** NA ** | ND | ND | .225 | ** NA ** | ** NA ** |
| BERYLLIUM | .0045 | .001 | ** NA ** | .000 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BORON | 12.3 | 4.05 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CADMIUM | .039 | .015 | ND | .015 | .06 | ND | ND | .05 | ** NA ** | ND |
| CHROMIUM (HEXAVALENT) | ** NA ** | ** NA ** | ** NA ** | ND | ND | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHROMIUM (TOTAL) | .34 | .10 | ND | .059 | .4 | 1 | .1 | .64 | ** NA ** | ND |
| COBALT | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| COPPER | .09 | .050 | ND | .029 | .1 | .1 | .5 | .17 | ** NA ** | ND |
| CYANIDE | .02 | .025 | ** NA ** | .005 | ND | ** NA ** | ** NA ** | .25 | ** NA ** | ** NA ** |
| LEAD | .46 | .13 | ND | .1 | ND | .3 | .015 | .03 | ** NA ** | ND |
| MANGANESE | 2.03 | 1.795 | .03 | ** NA ** | ** NA ** | 1.4 | ** NA ** | .5 | ** NA ** | 2.07 |
| MAGNESIUM | ** NA ** | ** NA ** | 120 | ** NA ** | ** NA ** | 200 | ** NA ** | ** NA ** | ** NA ** | 210.5 |
| MERCURY | .0006 | .001 | ND | .0006 | ** NA ** | ND | ND | .0002 | ** NA ** | ** NA ** |
| NICKEL | 1.65 | .23 | ND | .14 | 1.25 | .10 | ND | 1.00 | ** NA ** | ND |
| OSMIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SELENIUM | .006 | .002 | ** NA ** | ND | ** NA ** | ND | ** NA ** | .02 | ** NA ** | ** NA ** |
| SILVER | .024 | .000 | ** NA ** | .009 | ** NA ** | ND | ** NA ** | .0000 | ** NA ** | ** NA ** |
| STRONTIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| THALLIUM | .020 | .004 | ** NA ** | .1 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TIN | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | .16 | ** NA ** | ** NA ** |
| VANADIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ZINC | 20.9 | 1.96 | ND | ** NA ** | 10 | 2 | .03 | 22 | ** NA ** | .42 |

# TABLE A-2 ORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED DURING 1980 OR EARLIER

| SAMPLE NUMBER | 02-01 | 02-02 | 02-03 | 19-01 | 19-02 | 20-01 | 20-02 | 20-03 | 22-01 | 22-02 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | 1975 | 1975 | 1975 | 1959 | 1959 | 1969 | 1969 | 1969 | 1978 | 1978 |
| DATA SOURCE | NUS | NUS | NUS | Wisconsin | Wisconsin | Wisconsin | Wisconsin | Wisconsin | Wisconsin | Wisconsin |
| ACETONE | 170 | 350 | 290 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ACROLEIN | ND | ND | ND | -100 | -100 | -1500 | -100 | -100 | -1500 | -100 |
| BENZENE | ND | ND | ND | 270 | 67 | -250 | 310 | 470 | -250 | 600 |
| BROMOMETHANE | ND | ND | ND | -10 | -10 | -250 | -10 | -10 | -250 | -10 |
| BUTANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1-BUTANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-BUTANONE (MEK) | 290 | 430 | 440 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BUTYL BENZYL PHENOL | *** NA *** | *** NA *** | *** NA *** | -10 | -10 | 125 | -10 | -10 | -20 | -10 |
| CARBON TETRACHLORIDE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| CHLOROBENZENE | *** NA *** | *** NA *** | *** NA *** | -10 | 4 | -250 | -10 | -10 | -250 | -10 |
| CHLOROETHANE | ND | ND | ND | -10 | -10 | -250 | -10 | -10 | -250 | 860 |
| BIS(2-CHLOROETHOXY)METHANE | ND | ND | ND | -10 | -10 | -100 | -10 | 25 | -50 | -10 |
| 2-CHLOROETHYL VINYL ETHER | ND | ND | ND | -10 | -10 | -320 | -10 | -10 | -400 | 2 |
| CHLOROFORM | ND | ND | ND | -10 | -10 | -250 | -10 | -10 | -250 | -10 |
| CHLOROMETHANE | ND | ND | ND | -10 | -10 | -250 | -10 | -10 | -250 | -10 |
| BIS(CHLOROMETHYL)ETHER | *** NA *** | *** NA *** | *** NA *** | -10 | -10 | -500 | -10 | -10 | -500 | -10 |
| 2-CHLORONAPHTHALENE | *** NA *** | *** NA *** | *** NA *** | -10 | -10 | -100 | -10 | -10 | -20 | -10 |
| P-CRESOL | 54 | 53 | 70 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2,4-D | 120 | 89 | ND | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 4,4-DDT | .11 | .056 | .042 | ND | ND | ND | ND | ND | ND | ND |
| DIBROMOMETHANE | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| DI-N-BUTYL PHTHALATE | ND | ND | ND | -10 | -10 | 100 | -10 | -10 | -20 | -10 |
| 1,2-DICHLOROBENZENE | ND | ND | ND | -10 | -10 | -100 | -10 | -10 | -20 | 13 |
| 1,4-DICHLOROBENZENE | ND | ND | ND | 0 | -10 | -100 | -10 | 37 | -20 | -10 |
| DICHLORODIFLUOROMETHANE | ND | ND | ND | -10 | -10 | -250 | -10 | -10 | -250 | 450 |
| 1,1-DICHLOROETHANE | ND | ND | ND | -10 | -10 | -250 | -10 | 5 | 510 | -10 |
| 1,2-DICHLOROETHANE | ND | ND | ND | -10 | -10 | -250 | -10 | -10 | -250 | -10 |
| CIS-1,2-DICHLOROETHYLENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TRANS-1,2-DICHLOROETHYLENE | ND | ND | ND | -10 | 24 | -250 | -10 | -10 | 2200 | 1300 |
| 1,2-DICHLOROPROPANE | ND | ND | ND | -10 | -10 | -250 | -10 | -10 | -250 | -10 |
| 1,3-DICHLOROPROPENE | ND | ND | ND | -10 | -10 | -250 | -10 | -10 | -250 | -10 |
| DIETHYL PHTHALATE | ND | ND | ND | -10 | -10 | 200 | 71 | 3 | 300 | 300 |
| 2,4-DIMETHYLPHENOL | ND | ND | ND | -25 | -25 | -25 | -25 | -25 | -75 | 10 |
| DIMETHYL PHTHALATE | ND | ND | ND | -10 | -10 | -100 | -10 | -10 | 10 | -10 |
| ENDRIN | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| ETHANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ETHYL ACETATE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ETHYL BENZENE | ND | ND | ND | -10 | 245 | -250 | -10 | -10 | 150 | 500 |
| BIS(2-ETHYLHEXYL)PHTHALATE | ND | ND | ND | -10 | -10 | 150 | -10 | -10 | 50 | -10 |
| 2-HEXANONE | 6 | ND | 12 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ISOPHORONE | ND | ND | ND | -10 | -10 | 4000 | 4 | -10 | 16000 | 500 |
| LINDANE | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 4-METHYL-2-PENTANONE | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| METHYLENE CHLORIDE | 2 | 3 | 3 | -10 | -10 | 20000 | 450 | -10 | 2000 | 1500 |

## TABLE A-2 ORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED DURING 1980 OR EARLIER (continued)

| SAMPLE NUMBER | 02-01 | 02-02 | 02-03 | 19-01 | 19-02 | 20-01 | 20-02 | 20-03 | 22-01 | 22-02 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | 1975 | 1975 | 1975 | 1959 | 1959 | 1969 | 1969 | 1969 | 1976 | 1970 |
| DATA SOURCE | NUS | NUS | NUS | Wisconsin | Wisconsin | Wisconsin | Wisconsin | Wisconsin | Wisconsin | Wisconsin |
| NAPHTHALENE | ND | ND | ND | 13 | -10 | -100 | -10 | -10 | -50 | -10 |
| NITROBENZENE | ND | ND | ND | -10 | -10 | -100 | -10 | -10 | 120 | -10 |
| 4-NITROPHENOL | ND | ND | ND | -25 | -25 | -25 | -25 | -25 | -75 | -25 |
| PENTACHLOROPHENOL | ND | ND | ND | -25 | -25 | -25 | -25 | -25 | -75 | -25 |
| PHENOL | 41 | 45 | 70 | -25 | 19 | -25 | 13 | -25 | 5790 | 3700 |
| 1-PROPANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-PROPANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,1,2,2-TETRACHLOROETHANE | ND | ND | ND | -10 | -10 | -250 | -10 | -10 | -250 | -10 |
| TETRACHLOROETHYLENE | ND | ND | ND | -10 | -10 | -250 | -10 | -10 | 60 | -10 |
| TETRAHYDROFURAN | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TOLUENE | ND | ND | ND | 190 | 460 | 290 | 0 | -10 | 1400 | 1900 |
| TOXAPHENE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1,1-TRICHLOROETHANE | *** NA *** | *** NA *** | *** NA *** | -10 | -10 | -250 | -10 | -10 | -250 | -10 |
| 1,1,2-TRICHLOROETHANE | ND | ND | ND | -10 | -10 | -250 | -10 | -10 | -250 | -10 |
| TRICHLOROETHYLENE | ND | ND | ND | -10 | -10 | -250 | -10 | -10 | 600 | 370 |
| TRICHLOROFLUOROMETHANE | ND | ND | ND | -10 | -10 | -250 | 74 | -10 | -250 | -10 |
| 1,2,3-TRICHLOROPROPANE | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| VINYL CHLORIDE | ND | ND | ND | -10 | -10 | -250 | -10 | -10 | -250 | -10 |
| M-XYLENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| XYLENES | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |

## TABLE A-2 ORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED DURING 1980 OR EARLIER (continued)

| SAMPLE NUMBER | 22-03 | 22-04 | 22-05 | 22-06 | 22-07 | 22-08 | 23-01 | 23-02 | 23-03 | 23-04 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | 1970 | 1970 | 1970 | 1970 | 1970 | 1970 | 1980 | 1980 | 1980 | 1980 |
| DATA SOURCE | Wisconsin | Wisconsin | Wisconsin | Wisconsin | Wisconsin | Wisconsin | Wisconsin | Wisconsin | Wisconsin | Wisconsin |
| ACETONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ACROLEIN | -100 | -100 | -100 | -100 | -100 | -100 | 270 | -100 | -100 | -100 |
| BENZENE | 500 | 1000 | 120 | 9 | 46 | 100 | -250 | 440 | 300 | 10 |
| BROMOMETHANE | -10 | -10 | -10 | -10 | -10 | -10 | -250 | -10 | -10 | -10 |
| BUTANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1-BUTANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-BUTANONE (MEK) | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BUTYL BENZYL PHENOL | -10 | 21 | -10 | -10 | -10 | -10 | 150 | -10 | -10 | -10 |
| CARBON TETRACHLORIDE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| CHLOROBENZENE | -10 | -10 | 5 | 3 | 1 | 7 | -250 | -10 | -10 | -10 |
| CHLOROETHANE | -10 | -10 | -10 | -10 | -10 | 27 | -250 | -10 | -10 | -10 |
| BIS(2-CHLOROETHOXY)METHANE | -10 | -10 | -10 | -10 | -10 | -10 | -100 | -10 | 10 | -10 |
| 2-CHLOROETHYL VINYL ETHER | 1100 | -10 | -10 | -10 | -10 | -10 | -320 | -10 | -10 | -10 |
| CHLOROFORM | -10 | -10 | -10 | 8 | -10 | -10 | -250 | -10 | -10 | -10 |
| CHLOROMETHANE | -10 | -10 | -10 | -10 | -10 | -10 | -250 | -10 | -10 | -10 |
| BIS(CHLOROMETHYL)ETHER | -10 | -10 | -10 | -10 | -10 | -10 | -500 | -10 | -10 | *** NA *** |
| 2-CHLORONAPHTHALENE | -10 | -10 | -10 | -10 | -10 | 46 | -100 | -10 | -10 | -10 |
| P-CRESOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2,4-D | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 4,4-DDT | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| DIBROMOMETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| DI-N-BUTYL PHTHALATE | -10 | 49 | -10 | -10 | -10 | -10 | 150 | -10 | -10 | -10 |
| 1,2-DICHLOROBENZENE | -10 | -10 | 9 | -10 | -10 | 9 | -100 | -10 | -10 | -10 |
| 1,4-DICHLOROBENZENE | -10 | -10 | 5 | 4 | 4 | 8 | -100 | -10 | 1 | -10 |
| DICHLORODIFLUOROMETHANE | -10 | -10 | -10 | -10 | -10 | -10 | -250 | -10 | -10 | *** NA *** |
| 1,1-DICHLOROETHANE | 64 | -10 | 419 | 264 | 134 | 720 | -250 | 160 | -10 | -10 |
| 1,2-DICHLOROETHANE | -10 | -10 | -10 | -10 | -10 | -10 | -250 | -10 | -10 | -10 |
| CIS-1,2-DICHLOROETHYLENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TRANS-1,2-DICHLOROETHYLENE | -10 | -10 | 1620 | 86 | 160 | 2760 | 96 | -10 | -10 | 26 |
| 1,2-DICHLOROPROPANE | -10 | -10 | 2 | 4 | 86 | 50 | -250 | -10 | -10 | -10 |
| 1,3-DICHLOROPROPENE | -10 | -10 | -10 | -10 | -10 | 30 | -250 | -10 | -10 | -10 |
| DIETHYL PHTHALATE | 170 | 330 | 254 | -10 | -10 | 107 | 150 | 20 | 62 | -10 |
| 2,4-DIMETHYLPHENOL | -25 | -25 | -25 | -25 | -25 | -25 | -25 | -25 | -25 | -25 |
| DIMETHYL PHTHALATE | -10 | -10 | -10 | -10 | -10 | -10 | -100 | -10 | -10 | -10 |
| ENDRIN | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| ETHANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ETHYL ACETATE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ETHYL BENZENE | -10 | -10 | 890 | 30 | 230 | 1270 | -250 | -10 | -10 | 67 |
| BIS(2-ETHYLHEXYL)PHTHALATE | -10 | -10 | -10 | -10 | -10 | -10 | 150 | -10 | -10 | -10 |
| 2-HEXANONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ISOPHORONE | 210 | 100 | 224 | 76 | -10 | 524 | -250 | -10 | 160 | 15 |
| LINDANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 4-METHYL-2-PENTANONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| METHYLENE CHLORIDE | 430 | 4900 | 835 | 1520 | 7 | 1400 | 1100 | 1900 | -10 | 92 |

## TABLE A-2 ORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED DURING 1980 OR EARLIER (continued)

| SAMPLE NUMBER | 22-03 | 22-04 | 22-05 | 22-06 | 22-07 | 22-08 | 23-01 | 23-02 | 23-03 | 23-04 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | 1970 | 1970 | 1970 | 1970 | 1970 | 1970 | 1980 | 1980 | 1980 | 1980 |
| DATA SOURCE | Wisconsin | Wisconsin | Wisconsin | Wisconsin | Wisconsin | Wisconsin | Wisconsin | Wisconsin | Wisconsin | Wisconsin |
| NAPHTHALENE | 8 | -10 | 41 | -10 | -10 | 68 | -100 | 2 | 10 | -10 |
| NITROBENZENE | -10 | -10 | -10 | -10 | -10 | -10 | -100 | -10 | -10 | -10 |
| 4-NITROPHENOL | -25 | -25 | -25 | -25 | -25 | -25 | -25 | -25 | -25 | -25 |
| PENTACHLOROPHENOL | -25 | -25 | -25 | -25 | -25 | -25 | -25 | -25 | -25 | 45 |
| PHENOL | 1230 | 1000 | 11300 | 1000 | 51 | 11050 | 293 | 39 | 350 | -25 |
| 1-PROPANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-PROPANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,1,2,2-TETRACHLOROETHANE | -10 | -10 | -10 | -10 | -10 | -10 | -250 | -10 | -10 | -10 |
| TETRACHLOROETHYLENE | -10 | 215 | 141 | 232 | 2 | 620 | -250 | -10 | -10 | -10 |
| TETRAHYDROFURAN | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TOLUENE | -10 | 1740 | 700 | 419 | 790 | 1430 | 420 | 720 | 390 | 420 |
| TOXAPHENE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1,1-TRICHLOROETHANE | -10 | 640 | 84 | 190 | -10 | 310 | -250 | -10 | -10 | -10 |
| 1,1,2-TRICHLOROETHANE | -10 | -10 | 352 | 30 | -10 | -10 | -250 | -10 | -10 | -10 |
| TRICHLOROETHYLENE | -10 | 43 | 542 | 56 | 16 | 1120 | -250 | 100 | -10 | -10 |
| TRICHLOROFLUOROMETHANE | -10 | -10 | 54 | 110 | -10 | -10 | -250 | -10 | -10 | -10 |
| 1,2,3-TRICHLOROPROPANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| VINYL CHLORIDE | -10 | -10 | -10 | -10 | -10 | 47 | -250 | -10 | -10 | -10 |
| M-XYLENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| XYLENES | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |

## TABLE A-2 ORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED DURING 1980 OR EARLIER (continued)

| SAMPLE NUMBER | 23-05 | 23-06 | 24-01 | 30-01 | 31-01 | 32-01 | 38-01 | 53-01 | 61-01 | 61-02 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | 1980 | 1980 | 1969 | 1969 | 1977 | 1976 | 1978 | 1979 | 1973 | 1973 |
| DATA SOURCE | Wisconsin | Wisconsin | Wisconsin | Wisconsin | Wisconsin | Wisconsin | Wisconsin | Trade Assoc | Waste Mgmt | Waste Mgmt |
| ACETONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | *** NA *** | *** NA *** |
| ACROLEIN | -100 | -5000 | *** NA *** | -10 | -10 | -10 | -10 | >> UNK << | -100 | *** NA *** |
| BENZENE | -10 | -500 | *** NA *** | 19 | 4 | 4 | -100 | 740 | -10 | *** NA *** |
| BROMOMETHANE | -10 | -500 | *** NA *** | 170 | -1 | -1 | -100 | >> UNK << | -10 | *** NA *** |
| BUTANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | *** NA *** | *** NA *** |
| 1-BUTANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | *** NA *** | *** NA *** |
| 2-BUTANONE (MEK) | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | *** NA *** | *** NA *** |
| BUTYL BENZYL PHENOL | -10 | -10 | *** NA *** | -10 | -50 | -50 | -50 | >> UNK << | *** NA *** | *** NA *** |
| CARBON TETRACHLORIDE | ND | ND | *** NA *** | ND | ND | ND | ND | >> UNK << | -10 | *** NA *** |
| CHLOROBENZENE | -10 | -500 | *** NA *** | -10 | -50 | -50 | -100 | >> UNK << | -10 | *** NA *** |
| CHLOROETHANE | -10 | 400 | *** NA *** | 170 | 16 | 20 | *** NA *** | >> UNK << | -10 | *** NA *** |
| BIS(2-CHLOROETHOXY)METHANE | -10 | -10 | *** NA *** | -10 | -1 | -1 | -10 | >> UNK << | -10 | *** NA *** |
| 2-CHLOROETHYL VINYL ETHER | -10 | -500 | *** NA *** | -10 | -1 | -1 | -100 | >> UNK << | -10 | *** NA *** |
| CHLOROFORM | -10 | -500 | 14.0 | 71 | 27 | 31 | 1300 | >> UNK << | -10 | *** NA *** |
| CHLOROMETHANE | -10 | -500 | *** NA *** | 170 | -1 | -1 | -100 | >> UNK << | -10 | *** NA *** |
| BIS(CHLOROMETHYL)ETHER | *** NA *** | *** NA *** | *** NA *** | 250 | -1 | -1 | *** NA *** | >> UNK << | -10 | *** NA *** |
| 2-CHLORONAPHTHALENE | -10 | -10 | *** NA *** | -10 | -50 | -50 | -10 | >> UNK << | -10 | *** NA *** |
| P-CRESOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | *** NA *** | *** NA *** |
| 2,4-D | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | -50 | *** NA *** |
| 4,4-DDT | ND | ND | *** NA *** | ND | ND | ND | ND | >> UNK << | -10 | *** NA *** |
| DIBROMOMETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | *** NA *** | *** NA *** |
| DI-N-BUTYL PHTHALATE | -10 | -10 | *** NA *** | 12 | -50 | -50 | -10 | >> UNK << | -10 | *** NA *** |
| 1,2-DICHLOROBENZENE | -10 | -10 | *** NA *** | -10 | -50 | -50 | -20 | >> UNK << | -10 | *** NA *** |
| 1,4-DICHLOROBENZENE | -10 | -10 | *** NA *** | -10 | -50 | -50 | -20 | >> UNK << | -10 | *** NA *** |
| DICHLORODIFLUOROMETHANE | *** NA *** | *** NA *** | *** NA *** | 100 | -1 | -1 | -100 | >> UNK << | -10 | *** NA *** |
| 1,1-DICHLOROETHANE | -10 | 1900 | *** NA *** | 6300 | 110 | 61 | 570 | >> UNK << | 77 | *** NA *** |
| 1,2-DICHLOROETHANE | -10 | -500 | *** NA *** | 13 | 1 | -1 | 11000 | >> UNK << | -10 | *** NA *** |
| CIS-1,2-DICHLOROETHYLENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | *** NA *** | *** NA *** |
| TRANS-1,2-DICHLOROETHYLENE | -10 | 1400 | *** NA *** | 1300 | 17 | 55 | *** NA *** | >> UNK << | 75 | *** NA *** |
| 1,2-DICHLOROPROPANE | -10 | -500 | *** NA *** | 54 | 5 | 3 | -100 | >> UNK << | -10 | *** NA *** |
| 1,3-DICHLOROPROPENE | -10 | -500 | *** NA *** | 10 | -1 | -1 | -100 | >> UNK << | -20 | *** NA *** |
| DIETHYL PHTHALATE | 11 | 120 | *** NA *** | 43 | 69 | -50 | -20 | >> UNK << | -10 | *** NA *** |
| 2,4-DIMETHYLPHENOL | 20 | -2500 | *** NA *** | -25 | -50 | -50 | -10 | >> UNK << | -25 | *** NA *** |
| DIMETHYL PHTHALATE | -10 | -10 | *** NA *** | 55 | -50 | -50 | -20 | >> UNK << | -10 | *** NA *** |
| ENDRIN | ND | ND | *** NA *** | ND | ND | ND | ND | >> UNK << | -10 | *** NA *** |
| ETHANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | *** NA *** | *** NA *** |
| ETHYL ACETATE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | *** NA *** | *** NA *** |
| ETHYL BENZENE | 4900 | -500 | *** NA *** | 250 | 6 | 7 | 100 | >> UNK << | 25 | *** NA *** |
| BIS(2-ETHYLHEXYL)PHTHALATE | 32 | -10 | *** NA *** | 34 | -50 | -50 | 110 | >> UNK << | -10 | *** NA *** |
| 2-HEXANONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | *** NA *** | *** NA *** |
| ISOPHORONE | -10 | -10 | *** NA *** | -10 | -50 | -50 | -10 | >> UNK << | -10 | *** NA *** |
| LINDANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | -2 | *** NA *** |
| 4-METHYL-2-PENTANONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | *** NA *** | *** NA *** |
| METHYLENE CHLORIDE | -10 | 2600 | 106 | 2300 | 540 | 700 | 2500 | >> UNK << | 142 | *** NA *** |

## TABLE A-2 ORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED DURING 1980 OR EARLIER (continued)

| SAMPLE NUMBER | 23-05 | 23-06 | 24-01 | 30-01 | 31-01 | 32-01 | 38-01 | 53-01 | 61-01 | 61-02 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | 1980 | 1980 | 1969 | 1969 | 1977 | 1976 | 1978 | 1979 | 1973 | 1973 |
| DATA SOURCE | Wisconsin | Wisconsin | Wisconsin | Wisconsin | Wisconsin | Wisconsin | Wisconsin | Trade Assoc | Waste Mgmt | Waste Mgmt |
| NAPHTHALENE | -10 | -10 | *** NA *** | 19 | -50 | -50 | -10 | >> UNK << | -10 | *** NA *** |
| NITROBENZENE | -10 | -10 | *** NA *** | 40 | -50 | -50 | -20 | >> UNK << | -10 | *** NA *** |
| 4-NITROPHENOL | -25 | -2500 | *** NA *** | -25 | -50 | -50 | 17 | >> UNK << | -25 | *** NA *** |
| PENTACHLOROPHENOL | 470 | -2500 | 3 | -25 | -50 | -50 | -10 | >> UNK << | -25 | *** NA *** |
| PHENOL | -25 | -2500 | *** NA *** | 221 | 500 | 110 | -10 | >> UNK << | -25 | *** NA *** |
| 1-PROPANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | *** NA *** | *** NA *** |
| 2-PROPANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | *** NA *** | *** NA *** |
| 1,1,2,2-TETRACHLOROETHANE | -10 | -500 | *** NA *** | -10 | -1 | -1 | 210 | >> UNK << | -10 | *** NA *** |
| TETRACHLOROETHYLENE | -10 | -500 | *** NA *** | 26 | 11 | 25 | -100 | >> UNK << | -10 | *** NA *** |
| TETRAHYDROFURAN | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | *** NA *** | *** NA *** |
| TOLUENE | 29 | 3200 | *** NA *** | 1600 | 56 | 79 | 200 | >> UNK << | 322 | *** NA *** |
| TOXAPHENE | ND | ND | *** NA *** | ND | ND | ND | ND | >> UNK << | -10 | *** NA *** |
| 1,1,1-TRICHLOROETHANE | -10 | -500 | *** NA *** | 2400 | 16 | 10 | -100 | >> UNK << | -10 | *** NA *** |
| 1,1,2-TRICHLOROETHANE | -10 | -500 | *** NA *** | -10 | -1 | -1 | 500 | >> UNK << | -10 | *** NA *** |
| TRICHLOROETHYLENE | -10 | -500 | *** NA *** | 160 | 33 | 26 | -100 | 57 | 12 | *** NA *** |
| TRICHLOROFLUOROMETHANE | -10 | -500 | *** NA *** | 15 | 6 | 11 | -100 | >> UNK << | -10 | *** NA *** |
| 1,2,3-TRICHLOROPROPANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | *** NA *** | *** NA *** |
| VINYL CHLORIDE | -10 | -500 | *** NA *** | 61 | -1 | -1 | -100 | >> UNK << | 23 | *** NA *** |
| M-XYLENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 130 | -10 | *** NA *** |
| XYLENES | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 70 | *** NA *** | *** NA *** |

## TABLE A-2 ORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED DURING 1980 OR EARLIER (continued)

| SAMPLE NUMBER | 61-03 | 62-03 | 62-04 | 63-01 | 63-02 | 63-03 | 63-04 | 63-05 | 63-06 | 64-01 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | 1973 | 1973 | 1973 | 1979 | 1979 | 1979 | 1979 | 1979 | 1979 | 1970 |
| DATA SOURCE | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt |
| ACETONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 390 | -150 | *** NA *** | *** NA *** |
| ACROLEIN | *** NA *** | -1000 | -2000 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BENZENE | *** NA *** | -440 | -80 | *** NA *** | *** NA *** | *** NA *** | -50 | *** NA *** | -30 | *** NA *** |
| BROMOMETHANE | *** NA *** | -1000 | -200 | *** NA *** | *** NA *** | *** NA *** | -100 | *** NA *** | -60 | *** NA *** |
| BUTANOL | *** NA *** | *** NA *** | -20000 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1-BUTANOL | *** NA *** | *** NA *** | -10000 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-BUTANONE (MEK) | *** NA *** | 2010 | 293 | *** NA *** | *** NA *** | *** NA *** | -250 | *** NA *** | 2000 | *** NA *** |
| BUTYL BENZYL PHENOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| CARBON TETRACHLORIDE | *** NA *** | -200 | -56 | *** NA *** | *** NA *** | *** NA *** | -50 | *** NA *** | -30 | *** NA *** |
| CHLOROBENZENE | *** NA *** | -600 | -120 | *** NA *** | *** NA *** | *** NA *** | -50 | *** NA *** | -30 | *** NA *** |
| CHLOROETHANE | *** NA *** | -1000 | -200 | *** NA *** | *** NA *** | *** NA *** | -50 | *** NA *** | -30 | *** NA *** |
| BIS(2-CHLOROETHOXY)METHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-CHLOROETHYL VINYL ETHER | *** NA *** | -1000 | -200 | *** NA *** | *** NA *** | *** NA *** | -50 | *** NA *** | -30 | *** NA *** |
| CHLOROFORM | *** NA *** | -160 | -32 | *** NA *** | *** NA *** | *** NA *** | -50 | *** NA *** | -30 | *** NA *** |
| CHLOROMETHANE | *** NA *** | -1000 | -200 | *** NA *** | *** NA *** | *** NA *** | -100 | *** NA *** | -60 | *** NA *** |
| BIS(CHLOROMETHYL)ETHER | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-CHLORONAPHTHALENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| P-CRESOL | *** NA *** | -200 | 45.2 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2,4-D | *** NA *** | -200 | -100 | -50 | *** NA *** | *** NA *** | *** NA *** | 220 | *** NA *** | *** NA *** |
| 4,4-DDT | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -3.1 | *** NA *** | *** NA *** |
| DIBROMOMETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| DI-N-BUTYL PHTHALATE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,2-DICHLOROBENZENE | *** NA *** | -19 | 21.9 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,4-DICHLOROBENZENE | *** NA *** | -44 | 13.0 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| DICHLORODIFLUOROMETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,1-DICHLOROETHANE | *** NA *** | 491 | 526 | *** NA *** | *** NA *** | *** NA *** | 200 | *** NA *** | 73 | *** NA *** |
| 1,2-DICHLOROETHANE | *** NA *** | -200 | -56 | *** NA *** | *** NA *** | *** NA *** | -50 | *** NA *** | -30 | *** NA *** |
| CIS-1,2-DICHLOROETHYLENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TRANS-1,2-DICHLOROETHYLENE | *** NA *** | -160 | 909 | *** NA *** | *** NA *** | *** NA *** | 100 | *** NA *** | -30 | *** NA *** |
| 1,2-DICHLOROPROPANE | *** NA *** | -600 | -120 | *** NA *** | *** NA *** | *** NA *** | -50 | *** NA *** | -30 | *** NA *** |
| 1,3-DICHLOROPROPENE | *** NA *** | -1500 | -300 | *** NA *** | *** NA *** | *** NA *** | -100 | *** NA *** | -60 | *** NA *** |
| DIETHYL PHTHALATE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2,4-DIMETHYLPHENOL | *** NA *** | -54 | -5.4 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| DIMETHYL PHTHALATE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ENDRIN | *** NA *** | *** NA *** | *** NA *** | -.1 | *** NA *** | *** NA *** | *** NA *** | -11 | *** NA *** | *** NA *** |
| ETHANOL | *** NA *** | *** NA *** | -10000 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ETHYL ACETATE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ETHYL BENZENE | *** NA *** | -720 | 323 | *** NA *** | *** NA *** | *** NA *** | 27 | *** NA *** | -30 | *** NA *** |
| BIS(2-ETHYLHEXYL)PHTHALATE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-HEXANONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -250 | *** NA *** | -150 | *** NA *** |
| ISOPHORONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| LINDANE | *** NA *** | *** NA *** | *** NA *** | -2 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 4-METHYL-2-PENTANONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| METHYLENE CHLORIDE | *** NA *** | 57100 | 0720 | *** NA *** | *** NA *** | *** NA *** | 1500 | *** NA *** | 1000 | *** NA *** |

## TABLE A-2 ORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED DURING 1980 OR EARLIER (continued)

| SAMPLE NUMBER | 61-03 | 62-03 | 62-04 | 63-01 | 63-02 | 63-03 | 63-04 | 63-05 | 63-06 | 64-01 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | 1973 | 1973 | 1973 | 1979 | 1979 | 1979 | 1979 | 1979 | 1979 | 1970 |
| DATA SOURCE | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt |
| NAPHTHALENE | *** NA *** | 176 | 202 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| NITROBENZENE | *** NA *** | -19 | -3.0 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 4-NITROPHENOL | *** NA *** | -40 | -4.0 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| PENTACHLOROPHENOL | *** NA *** | -72 | -72 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| PHENOL | *** NA *** | 1760 | 6320 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1-PROPANOL | *** NA *** | -10000 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-PROPANOL | *** NA *** | -10000 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,1,2,2-TETRACHLOROETHANE | *** NA *** | -690 | -140 | *** NA *** | *** NA *** | *** NA *** | -50 | *** NA *** | -30 | *** NA *** |
| TETRACHLOROETHYLENE | *** NA *** | -410 | -82 | *** NA *** | *** NA *** | *** NA *** | -50 | *** NA *** | 42 | *** NA *** |
| TETRAHYDROFURAN | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 1300 | *** NA *** | 1100 | *** NA *** |
| TOLUENE | *** NA *** | 13300 | 3390 | *** NA *** | *** NA *** | *** NA *** | 450 | *** NA *** | 390 | *** NA *** |
| TOXAPHENE | *** NA *** | -500000 | -500000 | -5 | *** NA *** | *** NA *** | *** NA *** | -11000 | *** NA *** | *** NA *** |
| 1,1,1-TRICHLOROETHANE | *** NA *** | -380 | -76 | *** NA *** | *** NA *** | *** NA *** | -50 | *** NA *** | 200 | *** NA *** |
| 1,1,2-TRICHLOROETHANE | *** NA *** | -500 | -100 | *** NA *** | *** NA *** | *** NA *** | -50 | *** NA *** | -30 | *** NA *** |
| TRICHLOROETHYLENE | *** NA *** | -190 | 234 | *** NA *** | *** NA *** | *** NA *** | -50 | *** NA *** | 30 | *** NA *** |
| TRICHLOROFLUOROMETHANE | *** NA *** | -1000 | -200 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,2,3-TRICHLOROPROPANE | *** NA *** | -1000 | -200 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| VINYL CHLORIDE | *** NA *** | -1000 | -200 | *** NA *** | *** NA *** | *** NA *** | -100 | *** NA *** | -60 | *** NA *** |
| M-XYLENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| XYLENES | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 71 | *** NA *** | 60 | *** NA *** |

## TABLE A-2 ORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED DURING 1980 OR EARLIER (continued)

| SAMPLE NUMBER | 64-02 | 64-03 | 64-04 | 65-01 | 65-02 | 65-03 | 65-04 | 65-05 | 65-06 | 65-07 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | 1970 | 1970 | 1970 | 1971 | 1971 | 1971 | 1971 | 1971 | 1971 | 1971 |
| DATA SOURCE | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt |
| ACETONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ACROLEIN | -1000 | -1000 | -100 | -1000 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BENZENE | -44 | 950 | -4.4 | 760 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BROMOMETHANE | -100 | -1000 | -10 | -20 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BUTANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1-BUTANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-BUTANONE (MEK) | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BUTYL BENZYL PHENOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| CARBON TETRACHLORIDE | -20 | -200 | -2.0 | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| CHLOROBENZENE | -60 | 685 | -6 | -20 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| CHLOROETHANE | -100 | -1000 | -10 | -20 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BIS(2-CHLOROETHOXY)METHANE | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-CHLOROETHYL VINYL ETHER | -100 | -1000 | -10 | -50 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| CHLOROFORM | -16 | -160 | -1.6 | -20 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| CHLOROMETHANE | -100 | -1000 | -10 | -20 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BIS(CHLOROMETHYL)ETHER | -100 | -1000 | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-CHLORONAPHTHALENE | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| P-CRESOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2,4-D | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 4,4-DDT | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** | 7.4 | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| DIBROMOMETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| DI-N-BUTYL PHTHALATE | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,2-DICHLOROBENZENE | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,4-DICHLOROBENZENE | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| DICHLORODIFLUOROMETHANE | -100 | -1000 | -10 | -20 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,1-DICHLOROETHANE | -47 | -470 | -4.7 | 170 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,2-DICHLOROETHANE | -20 | -200 | -2.0 | 20 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| CIS-1,2-DICHLOROETHYLENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TRANS-1,2-DICHLOROETHYLENE | -16 | 3130 | -1.6 | 140 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,2-DICHLOROPROPANE | -60 | -600 | -6 | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,3-DICHLOROPROPENE | -150 | -1500 | -15 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| DIETHYL PHTHALATE | *** NA *** | *** NA *** | *** NA *** | 140 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2,4-DIMETHYLPHENOL | *** NA *** | *** NA *** | *** NA *** | -5000 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| DIMETHYL PHTHALATE | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ENDRIN | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ETHANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ETHYL ACETATE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ETHYL BENZENE | 31 | -720 | -7.2 | 50 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BIS(2-ETHYLHEXYL)PHTHALATE | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-HEXANONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ISOPHORONE | *** NA *** | *** NA *** | *** NA *** | 50 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| LINDANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 4-METHYL-2-PENTANONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| METHYLENE CHLORIDE | -20 | 8110 | 12.5 | 4500 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |

## TABLE A-2 ORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED DURING 1980 OR EARLIER (continued)

| SAMPLE NUMBER | 64-02 | 64-03 | 64-04 | 65-01 | 65-02 | 65-03 | 65-04 | 65-05 | 65-06 | 65-07 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | 1970 | 1970 | 1970 | 1971 | 1971 | 1971 | 1971 | 1971 | 1971 | 1971 |
| DATA SOURCE | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt |
| NAPHTHALENE | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| NITROBENZENE | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 4-NITROPHENOL | *** NA *** | *** NA *** | *** NA *** | -9000 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| PENTACHLOROPHENOL | *** NA *** | *** NA *** | *** NA *** | -9000 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| PHENOL | *** NA *** | *** NA *** | *** NA *** | -5000 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1-PROPANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-PROPANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,1,2,2-TETRACHLOROETHANE | -69 | -690 | -6.9 | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TETRACHLOROETHYLENE | -41 | -410 | -4.1 | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TETRAHYDROFURAN | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TOLUENE | 496 | 3960 | -6 | 980 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TOXAPHENE | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,1,1-TRICHLOROETHANE | -30 | -300 | -3.0 | 60 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,1,2-TRICHLOROETHANE | -50 | -500 | -5 | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TRICHLOROETHYLENE | -19 | -190 | -1.9 | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TRICHLOROFLUOROMETHANE | -100 | -1000 | -10 | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,2,3-TRICHLOROPROPANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| VINYL CHLORIDE | -100 | -1000 | -10 | -20 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| M-XYLENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| XYLENES | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |

## TABLE A-2 ORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED DURING 1980 OR EARLIER (continued)

| SAMPLE NUMBER | 65-08 | 65-09 | 65-10 | 65-11 | 65-12 | 65-13 | 65-14 | 65-15 | 65-16 | 65-17 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | 1971 | 1971 | 1971 | 1971 | 1971 | 1971 | 1971 | 1971 | 1971 | 1971 |
| DATA SOURCE | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt |
| ACETONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ACROLEIN | *** NA *** | -100 | *** NA *** | *** NA *** | -500 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -100 |
| BENZENE | *** NA *** | 43 | *** NA *** | *** NA *** | -50 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 26.6 |
| BROMOMETHANE | *** NA *** | -10 | *** NA *** | *** NA *** | -50 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 |
| BUTANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1-BUTANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-BUTANONE (MEK) | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BUTYL BENZYL PHENOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| CARBON TETRACHLORIDE | *** NA *** | -10 | *** NA *** | *** NA *** | -50 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -2.8 |
| CHLOROBENZENE | *** NA *** | -10 | *** NA *** | *** NA *** | -50 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 7 |
| CHLOROETHANE | *** NA *** | 56 | *** NA *** | *** NA *** | -50 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 62 |
| BIS(2-CHLOROETHOXY)METHANE | *** NA *** | -10 | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 |
| 2-CHLOROETHYL VINYL ETHER | *** NA *** | -10 | *** NA *** | *** NA *** | -50 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 |
| CHLOROFORM | *** NA *** | -10 | *** NA *** | *** NA *** | -50 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -1.6 |
| CHLOROMETHANE | *** NA *** | -10 | *** NA *** | *** NA *** | -50 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 |
| BIS(CHLOROMETHYL)ETHER | *** NA *** | -10 | *** NA *** | *** NA *** | -50 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 |
| 2-CHLORONAPHTHALENE | *** NA *** | -10 | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 |
| P-CRESOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2,4-D | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 4,4-DDT | *** NA *** | -10 | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -4.7 |
| DIBROMOMETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| DI-N-BUTYL PHTHALATE | *** NA *** | -10 | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 |
| 1,2-DICHLOROBENZENE | *** NA *** | -10 | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 |
| 1,4-DICHLOROBENZENE | *** NA *** | -10 | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 6 |
| DICHLORODIFLUOROMETHANE | *** NA *** | -10 | *** NA *** | *** NA *** | -50 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 36 |
| 1,1-DICHLOROETHANE | *** NA *** | 252 | *** NA *** | *** NA *** | 260 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 240 |
| 1,2-DICHLOROETHANE | *** NA *** | -10 | *** NA *** | *** NA *** | -50 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -2.8 |
| CIS-1,2-DICHLOROETHYLENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TRANS-1,2-DICHLOROETHYLENE | *** NA *** | 421 | *** NA *** | *** NA *** | 197 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 204 |
| 1,2-DICHLOROPROPANE | *** NA *** | -10 | *** NA *** | *** NA *** | -50 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -6 |
| 1,3-DICHLOROPROPENE | *** NA *** | -20 | *** NA *** | *** NA *** | -100 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -15 |
| DIETHYL PHTHALATE | *** NA *** | 21 | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 10.4 |
| 2,4-DIMETHYLPHENOL | *** NA *** | -125 | *** NA *** | *** NA *** | -2500 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -27 |
| DIMETHYL PHTHALATE | *** NA *** | -10 | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 |
| ENDRIN | *** NA *** | -10 | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 |
| ETHANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ETHYL ACETATE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ETHYL BENZENE | *** NA *** | 64 | *** NA *** | *** NA *** | -50 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 46.4 |
| BIS(2-ETHYLHEXYL)PHTHALATE | *** NA *** | -10 | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 |
| 2-HEXANONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ISOPHORONE | *** NA *** | 106 | *** NA *** | *** NA *** | 19 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 67 |
| LINDANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 4-METHYL-2-PENTANONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| METHYLENE CHLORIDE | *** NA *** | 1130 | *** NA *** | *** NA *** | 1285 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 1060 |

## TABLE A-2 ORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED DURING 1980 OR EARLIER (continued)

| SAMPLE NUMBER | 65-08 | 65-09 | 65-10 | 65-11 | 65-12 | 65-13 | 65-14 | 65-15 | 65-16 | 65-17 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | 1971 | 1971 | 1971 | 1971 | 1971 | 1971 | 1971 | 1971 | 1971 | 1971 |
| DATA SOURCE | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt |
| NAPHTHALENE | *** NA *** | -10 | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 8 |
| NITROBENZENE | *** NA *** | -10 | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 |
| 4-NITROPHENOL | *** NA *** | -125 | *** NA *** | *** NA *** | -2500 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -24 |
| PENTACHLOROPHENOL | *** NA *** | -125 | *** NA *** | *** NA *** | -2500 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -36 |
| PHENOL | *** NA *** | 220 | *** NA *** | *** NA *** | -2500 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 430.2 |
| 1-PROPANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-PROPANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,1,2,2-TETRACHLOROETHANE | *** NA *** | -10 | *** NA *** | *** NA *** | -50 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -6.9 |
| TETRACHLOROETHYLENE | *** NA *** | -10 | *** NA *** | *** NA *** | -50 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | [illegible] |
| TETRAHYDROFURAN | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TOLUENE | *** NA *** | 1220 | *** NA *** | *** NA *** | [illegible] | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 539 |
| TOXAPHENE | *** NA *** | -10000 | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -40 |
| 1,1,1-TRICHLOROETHANE | *** NA *** | 87 | *** NA *** | *** NA *** | -50 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | [illegible] |
| 1,1,2-TRICHLOROETHANE | *** NA *** | -10 | *** NA *** | *** NA *** | -50 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -5 |
| TRICHLOROETHYLENE | *** NA *** | 74 | *** NA *** | *** NA *** | 92 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 41.3 |
| TRICHLOROFLUOROMETHANE | *** NA *** | -10 | *** NA *** | *** NA *** | -50 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 |
| 1,2,3-TRICHLOROPROPANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| VINYL CHLORIDE | *** NA *** | 56 | *** NA *** | *** NA *** | -50 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 44 |
| M-XYLENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| XYLENES | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |

# TABLE A-2 ORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED DURING 1980 OR EARLIER (continued)

| SAMPLE NUMBER | 65-18 | 65-19 | 65-20 | 65-21 | 65-22 | 65-23 | 65-24 | 65-25 | 65-26 | 65-27 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | 1971 | 1971 | 1971 | 1971 | 1971 | 1971 | 1971 | 1971 | 1971 | 1971 |
| DATA SOURCE | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt |
| ACETONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -3.6 | *** NA *** | *** NA *** | *** NA *** | -3.6 | *** NA *** |
| ACROLEIN | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -1000 | *** NA *** | *** NA *** | *** NA *** | -1000 | *** NA *** |
| BENZENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -44 | *** NA *** | *** NA *** | *** NA *** | 37 | *** NA *** |
| BROMOMETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -100 | *** NA *** | *** NA *** | *** NA *** | -100 | *** NA *** |
| BUTANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1-BUTANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-BUTANONE (MEK) | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BUTYL BENZYL PHENOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| CARBON TETRACHLORIDE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -20 | *** NA *** | *** NA *** | *** NA *** | -20 | *** NA *** |
| CHLOROBENZENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -60 | *** NA *** | *** NA *** | *** NA *** | -60 | *** NA *** |
| CHLOROETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -100 | *** NA *** | *** NA *** | *** NA *** | -100 | *** NA *** |
| BIS(2-CHLOROETHOXY)METHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -6 | *** NA *** | *** NA *** | *** NA *** | -6 | *** NA *** |
| 2-CHLOROETHYL VINYL ETHER | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -100 | *** NA *** | *** NA *** | *** NA *** | -100 | *** NA *** |
| CHLOROFORM | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -16 | *** NA *** | *** NA *** | *** NA *** | -16 | *** NA *** |
| CHLOROMETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -100 | *** NA *** | *** NA *** | *** NA *** | -100 | *** NA *** |
| BIS(CHLOROMETHYL)ETHER | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -100 | *** NA *** | *** NA *** | *** NA *** | -100 | *** NA *** |
| 2-CHLORONAPHTHALENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -2 | *** NA *** | *** NA *** | *** NA *** | -2 | *** NA *** |
| P-CRESOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2,4-D | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 4,4-DDT | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -3 | *** NA *** | *** NA *** | *** NA *** | -3 | *** NA *** |
| DIBROMOMETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| DI-N-BUTYL PHTHALATE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| 1,2-DICHLOROBENZENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -2 | *** NA *** | *** NA *** | *** NA *** | -2 | *** NA *** |
| 1,4-DICHLOROBENZENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -5 | *** NA *** | *** NA *** | *** NA *** | 5.97 | *** NA *** |
| DICHLORODIFLUOROMETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -100 | *** NA *** | *** NA *** | *** NA *** | -100 | *** NA *** |
| 1,1-DICHLOROETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 192 | *** NA *** | *** NA *** | *** NA *** | 265 | *** NA *** |
| 1,2-DICHLOROETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -20 | *** NA *** | *** NA *** | *** NA *** | -20 | *** NA *** |
| CIS-1,2-DICHLOROETHYLENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TRANS-1,2-DICHLOROETHYLENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | ,202 | *** NA *** | *** NA *** | *** NA *** | 229 | *** NA *** |
| 1,2-DICHLOROPROPANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -60 | *** NA *** | *** NA *** | *** NA *** | -60 | *** NA *** |
| 1,3-DICHLOROPROPENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -150 | *** NA *** | *** NA *** | *** NA *** | -150 | *** NA *** |
| DIETHYL PHTHALATE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 224 | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| 2,4-DIMETHYLPHENOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -2.0 | *** NA *** | *** NA *** | *** NA *** | -27 | *** NA *** |
| DIMETHYL PHTHALATE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| ENDRIN | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| ETHANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ETHYL ACETATE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ETHYL BENZENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -72 | *** NA *** | *** NA *** | *** NA *** | 59 | *** NA *** |
| BIS(2-ETHYLHEXYL)PHTHALATE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| 2-HEXANONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ISOPHORONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -2.3 | *** NA *** | *** NA *** | *** NA *** | 33.6 | *** NA *** |
| LINDANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 4-METHYL-2-PENTANONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| METHYLENE CHLORIDE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 1440 | *** NA *** | *** NA *** | *** NA *** | 578 | *** NA *** |

## TABLE A-2 ORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED DURING 1980 OR EARLIER (continued)

| SAMPLE NUMBER | 65-18 | 65-19 | 65-20 | 65-21 | 65-22 | 65-23 | 65-24 | 65-25 | 65-26 | 65-27 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | 1971 | 1971 | 1971 | 1971 | 1971 | 1971 | 1971 | 1971 | 1971 | 1971 |
| DATA SOURCE | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt |
| NAPHTHALENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 6.45 | *** NA *** | *** NA *** | *** NA *** | 0.26 | *** NA *** |
| NITROBENZENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -2 | *** NA *** | *** NA *** | *** NA *** | -2 | *** NA *** |
| 4-NITROPHENOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -2.5 | *** NA *** | *** NA *** | *** NA *** | -24 | *** NA *** |
| PENTACHLOROPHENOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -3.7 | *** NA *** | *** NA *** | *** NA *** | -26 | *** NA *** |
| PHENOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 386 | *** NA *** | *** NA *** | *** NA *** | 224 | *** NA *** |
| 1-PROPANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-PROPANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,1,2,2-TETRACHLOROETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TETRACHLOROETHYLENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 50.0 | *** NA *** | *** NA *** | *** NA *** | -41 | *** NA *** |
| TETRAHYDROFURAN | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TOLUENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 487 | *** NA *** | *** NA *** | *** NA *** | 701 | *** NA *** |
| TOXAPHENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| 1,1,1-TRICHLOROETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 45.9 | *** NA *** | *** NA *** | *** NA *** | -30 | *** NA *** |
| 1,1,2-TRICHLOROETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -50 | *** NA *** | *** NA *** | *** NA *** | -50 | *** NA *** |
| TRICHLOROETHYLENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 99.2 | *** NA *** | *** NA *** | *** NA *** | 37.6 | *** NA *** |
| TRICHLOROFLUOROMETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -100 | *** NA *** | *** NA *** | *** NA *** | -100 | *** NA *** |
| 1,2,3-TRICHLOROPROPANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| VINYL CHLORIDE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -100 | *** NA *** | *** NA *** | *** NA *** | 57 | *** NA *** |
| M-XYLENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| XYLENES | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |

## TABLE A-2 ORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED DURING 1980 OR EARLIER (continued)

| SAMPLE NUMBER | 65-28 | 65-29 | 65-30 | 68-01 | 68-02 | 68-03 | 66-04 | 69-01 | 71-01 | 72-01 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | 1971 | 1971 | 1971 | 1979 | 1979 | 1979 | 1979 | 1960 | 1960 | 1977 |
| DATA SOURCE | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt |
| ACETONE | *** NA *** | *** NA *** | -3.6 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ACROLEIN | *** NA *** | *** NA *** | -100 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -100 | *** NA *** | *** NA *** |
| BENZENE | *** NA *** | *** NA *** | 5.49 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -4.4 | *** NA *** | *** NA *** |
| BROMOMETHANE | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** |
| BUTANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1-BUTANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-BUTANONE (MEK) | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BUTYL BENZYL PHENOL | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| CARBON TETRACHLORIDE | *** NA *** | *** NA *** | -2.0 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -2.0 | *** NA *** | *** NA *** |
| CHLOROBENZENE | *** NA *** | *** NA *** | -6 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -6 | *** NA *** | *** NA *** |
| CHLOROETHANE | *** NA *** | *** NA *** | 11.1 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** |
| BIS(2-CHLOROETHOXY)METHANE | *** NA *** | *** NA *** | -6 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-CHLOROETHYL VINYL ETHER | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** |
| CHLOROFORM | *** NA *** | *** NA *** | 7.27 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -1.6 | *** NA *** | *** NA *** |
| CHLOROMETHANE | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** |
| BIS(CHLOROMETHYL)ETHER | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** |
| 2-CHLORONAPHTHALENE | *** NA *** | *** NA *** | -2 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| P-CRESOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2,4-D | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 |
| 4,4-DDT | *** NA *** | *** NA *** | -3 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| DIBROMOMETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| DI-N-BUTYL PHTHALATE | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,2-DICHLOROBENZENE | *** NA *** | *** NA *** | -2 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,4-DICHLOROBENZENE | *** NA *** | *** NA *** | -5 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| DICHLORODIFLUOROMETHANE | *** NA *** | *** NA *** | 373 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** |
| 1,1-DICHLOROETHANE | *** NA *** | *** NA *** | -4.7 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -4.7 | *** NA *** | *** NA *** |
| 1,2-DICHLOROETHANE | *** NA *** | *** NA *** | -2.0 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -2.0 | *** NA *** | *** NA *** |
| CIS-1,2-DICHLOROETHYLENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TRANS-1,2-DICHLOROETHYLENE | *** NA *** | *** NA *** | 39.5 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -1.6 | *** NA *** | *** NA *** |
| 1,2-DICHLOROPROPANE | *** NA *** | *** NA *** | -6 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -6 | *** NA *** | *** NA *** |
| 1,3-DICHLOROPROPENE | *** NA *** | *** NA *** | -15 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -15 | *** NA *** | *** NA *** |
| DIETHYL PHTHALATE | *** NA *** | *** NA *** | 110 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2,4-DIMETHYLPHENOL | *** NA *** | *** NA *** | -14 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| DIMETHYL PHTHALATE | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ENDRIN | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -20 |
| ETHANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ETHYL ACETATE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ETHYL BENZENE | *** NA *** | *** NA *** | 10.2 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 23.3 | *** NA *** | *** NA *** |
| BIS(2-ETHYLHEXYL)PHTHALATE | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-HEXANONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ISOPHORONE | *** NA *** | *** NA *** | 10.6 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| LINDANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -400 |
| 4-METHYL-2-PENTANONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| METHYLENE CHLORIDE | *** NA *** | *** NA *** | 170 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -2.0 | *** NA *** | *** NA *** |

## TABLE A-2 ORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED DURING 1980 OR EARLIER (continued)

| SAMPLE NUMBER | 65-28 | 65-29 | 65-30 | 68-01 | 68-02 | 68-03 | 68-04 | 69-01 | 71-01 | 72-01 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | 1971 | 1971 | 1971 | 1979 | 1979 | 1979 | 1979 | 1960 | 1960 | 1977 |
| DATA SOURCE | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt |
| NAPHTHALENE | *** NA *** | *** NA *** | 3.45 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| NITROBENZENE | *** NA *** | *** NA *** | -2 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 4-NITROPHENOL | *** NA *** | *** NA *** | -12.5 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| PENTACHLOROPHENOL | *** NA *** | *** NA *** | -19 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| PHENOL | *** NA *** | *** NA *** | 100 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1-PROPANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-PROPANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,1,2,2-TETRACHLOROETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -6.9 | *** NA *** | *** NA *** |
| TETRACHLOROETHYLENE | *** NA *** | *** NA *** | 10.2 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -4.1 | *** NA *** | *** NA *** |
| TETRAHYDROFURAN | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TOLUENE | *** NA *** | *** NA *** | 77.5 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 17.9 | *** NA *** | *** NA *** |
| TOXAPHENE | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -500 |
| 1,1,1-TRICHLOROETHANE | *** NA *** | *** NA *** | 173 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -3.0 | *** NA *** | *** NA *** |
| 1,1,2-TRICHLOROETHANE | *** NA *** | *** NA *** | -5 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -5 | *** NA *** | *** NA *** |
| TRICHLOROETHYLENE | *** NA *** | *** NA *** | 4.63 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -1.9 | *** NA *** | *** NA *** |
| TRICHLOROFLUOROMETHANE | *** NA *** | *** NA *** | 122 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** |
| 1,2,3-TRICHLOROPROPANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| VINYL CHLORIDE | *** NA *** | *** NA *** | 17.9 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 10.6 | *** NA *** | *** NA *** |
| M-XYLENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| XYLENES | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |

## TABLE A-2 ORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED DURING 1980 OR EARLIER (continued)

| SAMPLE NUMBER | 72-02 | 73-01 | 73-02 | 73-03 | 73-04 | 73-05 | 73-06 | 73-07 | 73-08 | 73-09 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | 1977 | 1973 | 1973 | 1973 | 1973 | 1973 | 1973 | 1973 | 1973 | 1973 |
| DATA SOURCE | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt |
| ACETONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ACROLEIN | *** NA *** | -100 | *** NA *** | -100 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -100 |
| BENZENE | *** NA *** | -10 | *** NA *** | -4.4 | *** NA *** | -10 | *** NA *** | *** NA *** | 37 | 6.33 |
| BROMOMETHANE | *** NA *** | -10 | *** NA *** | -10 | *** NA *** | -10 | *** NA *** | *** NA *** | -1 | -10 |
| BUTANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1-BUTANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-BUTANONE (MEK) | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BUTYL BENZYL PHENOL | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| CARBON TETRACHLORIDE | *** NA *** | -10 | *** NA *** | -2.8 | *** NA *** | -10 | *** NA *** | *** NA *** | -1 | -2.8 |
| CHLOROBENZENE | *** NA *** | -10 | *** NA *** | -6 | *** NA *** | -10 | *** NA *** | *** NA *** | -1 | -6 |
| CHLOROETHANE | *** NA *** | -10 | *** NA *** | -10 | *** NA *** | -10 | *** NA *** | *** NA *** | -1 | -10 |
| BIS(2-CHLOROETHOXY)METHANE | *** NA *** | *** NA *** | -10 | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -5.3 |
| 2-CHLOROETHYL VINYL ETHER | *** NA *** | -10 | *** NA *** | -10 | *** NA *** | -10 | *** NA *** | *** NA *** | -1 | -10 |
| CHLOROFORM | *** NA *** | -10 | *** NA *** | -2 | *** NA *** | -10 | *** NA *** | *** NA *** | -1 | -1.6 |
| CHLOROMETHANE | *** NA *** | -10 | *** NA *** | -10 | *** NA *** | -10 | *** NA *** | *** NA *** | -1 | -10 |
| BIS(CHLOROMETHYL)ETHER | *** NA *** | -10 | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 |
| 2-CHLORONAPHTHALENE | *** NA *** | *** NA *** | -10 | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -1.9 |
| P-CRESOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2,4-D | *** NA *** | -50 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 4,4-DDT | *** NA *** | *** NA *** | *** NA *** | -4.7 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -2.8 |
| DIBROMOMETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| DI-N-BUTYL PHTHALATE | *** NA *** | *** NA *** | -10 | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 |
| 1,2-DICHLOROBENZENE | *** NA *** | *** NA *** | 3 | -10 | *** NA *** | -10 | *** NA *** | *** NA *** | -1 | -1.9 |
| 1,4-DICHLOROBENZENE | *** NA *** | *** NA *** | -10 | -10 | *** NA *** | -10 | *** NA *** | *** NA *** | -1 | -4.4 |
| DICHLORODIFLUOROMETHANE | *** NA *** | -10 | *** NA *** | -10 | *** NA *** | -10 | *** NA *** | *** NA *** | -1 | -10 |
| 1,1-DICHLOROETHANE | *** NA *** | -10 | *** NA *** | -4.7 | *** NA *** | -10 | *** NA *** | *** NA *** | 4 | 11.6 |
| 1,2-DICHLOROETHANE | *** NA *** | -10 | *** NA *** | -2.8 | *** NA *** | -10 | *** NA *** | *** NA *** | 4 | -2.8 |
| CIS-1,2-DICHLOROETHYLENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TRANS-1,2-DICHLOROETHYLENE | *** NA *** | -10 | *** NA *** | -10 | *** NA *** | 11 | *** NA *** | *** NA *** | 7 | 31.7 |
| 1,2-DICHLOROPROPANE | *** NA *** | -10 | *** NA *** | -6 | *** NA *** | -10 | *** NA *** | *** NA *** | -1 | -6 |
| 1,3-DICHLOROPROPENE | *** NA *** | -20 | *** NA *** | -15 | *** NA *** | -10 | *** NA *** | *** NA *** | -2 | -15 |
| DIETHYL PHTHALATE | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 34.7 |
| 2,4-DIMETHYLPHENOL | *** NA *** | -25 | -5.4 | -3 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -2700 |
| DIMETHYL PHTHALATE | *** NA *** | *** NA *** | -10 | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 |
| ENDRIN | *** NA *** | -.1 | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 |
| ETHANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ETHYL ACETATE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ETHYL BENZENE | *** NA *** | -10 | *** NA *** | -7.2 | *** NA *** | -10 | *** NA *** | *** NA *** | 20 | 29.2 |
| BIS(2-ETHYLHEXYL)PHTHALATE | *** NA *** | *** NA *** | -10 | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 |
| 2-HEXANONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ISOPHORONE | *** NA *** | *** NA *** | -10 | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 14.1 |
| LINDANE | *** NA *** | -2 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 4-METHYL-2-PENTANONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| METHYLENE CHLORIDE | *** NA *** | 35 | *** NA *** | 8.6 | *** NA *** | -10 | *** NA *** | *** NA *** | -1 | 200 |

## TABLE A-2 ORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED DURING 1980 OR EARLIER (continued)

| SAMPLE NUMBER | 72-02 | 73-01 | 73-02 | 73-03 | 73-04 | 73-05 | 73-06 | 73-07 | 73-08 | 73-09 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | 1977 | 1973 | 1973 | 1973 | 1973 | 1973 | 1973 | 1973 | 1973 | 1973 |
| DATA SOURCE | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt |
| NAPHTHALENE | *** NA *** | *** NA *** | 4 | 2 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 0.76 |
| NITROBENZENE | *** NA *** | *** NA *** | -10 | 4 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -1.9 |
| 4-NITROPHENOL | *** NA *** | -25 | -4.0 | -2.4 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -40 |
| PENTACHLOROPHENOL | *** NA *** | -25 | -7.2 | -3.6 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -72 |
| PHENOL | *** NA *** | -25 | -3 | 7.3 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 154 |
| 1-PROPANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-PROPANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,1,2,2-TETRACHLOROETHANE | *** NA *** | -10 | *** NA *** | -7 | *** NA *** | -10 | *** NA *** | *** NA *** | -1 | -6.9 |
| TETRACHLOROETHYLENE | *** NA *** | -10 | *** NA *** | -4.1 | *** NA *** | -10 | *** NA *** | *** NA *** | -1 | -4.1 |
| TETRAHYDROFURAN | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TOLUENE | *** NA *** | 19 | *** NA *** | 7 | *** NA *** | -10 | *** NA *** | *** NA *** | 79 | 169 |
| TOXAPHENE | *** NA *** | -10 | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10000 |
| 1,1,1-TRICHLOROETHANE | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | -1 | -3.0 |
| 1,1,2-TRICHLOROETHANE | *** NA *** | -10 | *** NA *** | -5 | *** NA *** | -10 | *** NA *** | *** NA *** | -1 | -5 |
| TRICHLOROETHYLENE | *** NA *** | -10 | *** NA *** | -1.9 | *** NA *** | -10 | *** NA *** | *** NA *** | -1 | -1.9 |
| TRICHLOROFLUOROMETHANE | *** NA *** | -10 | *** NA *** | -10 | *** NA *** | -10 | *** NA *** | *** NA *** | -1 | -10 |
| 1,2,3-TRICHLOROPROPANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| VINYL CHLORIDE | *** NA *** | *** NA *** | -10 | -10 | *** NA *** | -10 | *** NA *** | *** NA *** | 0 | 36.4 |
| M-XYLENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| XYLENES | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |

## TABLE A-2 ORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED DURING 1980 OR EARLIER (continued)

| SAMPLE NUMBER | 73-10 | 73-11 | 75-01 | 75-02 | 75-03 | 75-04 | 77-01 | 78-01 | 78-02 | 78-03 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | 1973 | 1973 | 1959 | 1959 | 1959 | 1959 | 1965 | 1965 | 1965 | 1965 |
| DATA SOURCE | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt |
| ACETONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 10.4 | *** NA *** | *** NA *** | *** NA *** |
| ACROLEIN | *** NA *** | *** NA *** | -100 | -100 | -100 | -100 | -4 | *** NA *** | *** NA *** | -100 |
| BENZENE | *** NA *** | *** NA *** | -4.4 | 4.8 | 6.1 | 5.31 | 22.1 | *** NA *** | *** NA *** | -10 |
| BROMOMETHANE | *** NA *** | *** NA *** | -10 | -10 | -10 | -10 | -4 | *** NA *** | *** NA *** | -10 |
| BUTANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1-BUTANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-BUTANONE (MEK) | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 195 | *** NA *** | *** NA *** | *** NA *** |
| BUTYL BENZYL PHENOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| CARBON TETRACHLORIDE | *** NA *** | *** NA *** | -2.0 | -2.0 | -2.0 | -2.0 | -4 | *** NA *** | *** NA *** | -10 |
| CHLOROBENZENE | *** NA *** | *** NA *** | -6 | -6 | -6 | -6 | -4 | *** NA *** | *** NA *** | -10 |
| CHLOROETHANE | *** NA *** | *** NA *** | -10 | -10 | 27.9 | -10 | -4 | *** NA *** | *** NA *** | -10 |
| BIS(2-CHLOROETHOXY)METHANE | *** NA *** | *** NA *** | *** NA *** | -5.3 | *** NA *** | -12 | -20 | *** NA *** | *** NA *** | -10 |
| 2-CHLOROETHYL VINYL ETHER | *** NA *** | *** NA *** | -10 | -10 | -10 | -10 | -4 | *** NA *** | *** NA *** | -10 |
| CHLOROFORM | *** NA *** | *** NA *** | -1.6 | -1.6 | -1.6 | -1.6 | -4 | *** NA *** | *** NA *** | -10 |
| CHLOROMETHANE | *** NA *** | *** NA *** | -10 | -10 | -10 | -10 | -4 | *** NA *** | *** NA *** | -10 |
| BIS(CHLOROMETHYL)ETHER | *** NA *** | *** NA *** | -10 | -10 | -10 | -10 | *** NA *** | *** NA *** | *** NA *** | -10 |
| 2-CHLORONAPHTHALENE | *** NA *** | *** NA *** | *** NA *** | -1.9 | *** NA *** | -4.4 | -20 | *** NA *** | *** NA *** | -10 |
| P-CRESOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2,4-D | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 4,4-DDT | *** NA *** | *** NA *** | *** NA *** | -4.7 | *** NA *** | -7 | -.1 | *** NA *** | *** NA *** | -10 |
| DIBROMOMETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| DI-N-BUTYL PHTHALATE | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** | 40.1 | -20 | *** NA *** | *** NA *** | -10 |
| 1,2-DICHLOROBENZENE | *** NA *** | *** NA *** | 14.7 | 14 | -10 | -4.4 | -20 | *** NA *** | *** NA *** | -10 |
| 1,4-DICHLOROBENZENE | *** NA *** | *** NA *** | *** NA *** | -4.4 | *** NA *** | 52.1 | -20 | *** NA *** | *** NA *** | -10 |
| DICHLORODIFLUOROMETHANE | *** NA *** | *** NA *** | -10 | -10 | -10 | -10 | -4 | *** NA *** | *** NA *** | -10 |
| 1,1-DICHLOROETHANE | *** NA *** | *** NA *** | -4.7 | -4.7 | -4.7 | -4.7 | -4 | *** NA *** | *** NA *** | -10 |
| 1,2-DICHLOROETHANE | *** NA *** | *** NA *** | -2.0 | -2.0 | -2.0 | -2.0 | -4 | *** NA *** | *** NA *** | -10 |
| CIS-1,2-DICHLOROETHYLENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TRANS-1,2-DICHLOROETHYLENE | *** NA *** | *** NA *** | -1.6 | 16.3 | -1.6 | 20 | -4 | *** NA *** | *** NA *** | -10 |
| 1,2-DICHLOROPROPANE | *** NA *** | *** NA *** | -6 | -6 | -6 | -6 | -4 | *** NA *** | *** NA *** | -10 |
| 1,3-DICHLOROPROPENE | *** NA *** | *** NA *** | -15 | -15 | -15 | -13 | -8 | *** NA *** | *** NA *** | -10 |
| DIETHYL PHTHALATE | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** | 77.0 | 60.2 | *** NA *** | *** NA *** | -10 |
| 2,4-DIMETHYLPHENOL | *** NA *** | *** NA *** | *** NA *** | -3.2 | *** NA *** | -120 | -40 | *** NA *** | *** NA *** | -10 |
| DIMETHYL PHTHALATE | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** | -25 | -20 | *** NA *** | *** NA *** | -10 |
| ENDRIN | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** | -25 | -.5 | *** NA *** | *** NA *** | -10 |
| ETHANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ETHYL ACETATE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ETHYL BENZENE | *** NA *** | *** NA *** | 52.4 | 80 | 52.4 | 70.6 | 98.2 | *** NA *** | *** NA *** | 10 |
| BIS(2-ETHYLHEXYL)PHTHALATE | *** NA *** | *** NA *** | *** NA *** | 23 | *** NA *** | 529 | -20 | *** NA *** | *** NA *** | -10 |
| 2-HEXANONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -4 | *** NA *** | *** NA *** | *** NA *** |
| ISOPHORONE | *** NA *** | *** NA *** | *** NA *** | -2.2 | *** NA *** | -5 | -20 | *** NA *** | *** NA *** | -10 |
| LINDANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 4-METHYL-2-PENTANONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| METHYLENE CHLORIDE | *** NA *** | *** NA *** | -3 | -2.0 | -3 | -3 | -4 | *** NA *** | *** NA *** | -10 |

## TABLE A-2 ORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED DURING 1980 OR EARLIER (continued)

| SAMPLE NUMBER | 73-10 | 73-11 | 75-01 | 75-02 | 75-03 | 75-04 | 77-01 | 78-01 | 78-02 | 78-03 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | 1973 | 1973 | 1959 | 1959 | 1959 | 1959 | 1965 | 1965 | 1965 | 1965 |
| DATA SOURCE | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt |
| NAPHTHALENE | *** NA *** | *** NA *** | *** NA *** | 12 | *** NA *** | 50.4 | 36 | *** NA *** | *** NA *** | 13 |
| NITROBENZENE | *** NA *** | *** NA *** | *** NA *** | -1.9 | *** NA *** | -5 | -20 | *** NA *** | *** NA *** | -10 |
| 4-NITROPHENOL | *** NA *** | *** NA *** | *** NA *** | -2.9 | *** NA *** | -110 | -40 | *** NA *** | *** NA *** | -10 |
| PENTACHLOROPHENOL | *** NA *** | *** NA *** | *** NA *** | -4.3 | *** NA *** | -160 | -40 | *** NA *** | *** NA *** | -10 |
| PHENOL | *** NA *** | *** NA *** | *** NA *** | 202 | *** NA *** | 15000 | -40 | *** NA *** | *** NA *** | -10 |
| 1-PROPANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-PROPANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,1,2,2-TETRACHLOROETHANE | *** NA *** | *** NA *** | -6.9 | -6.9 | -6.9 | -6.9 | -4 | *** NA *** | *** NA *** | -10 |
| TETRACHLOROETHYLENE | *** NA *** | *** NA *** | -4.1 | -4.1 | -4.1 | -4.1 | -4 | *** NA *** | *** NA *** | -10 |
| TETRAHYDROFURAN | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 34 | *** NA *** | *** NA *** | *** NA *** |
| TOLUENE | *** NA *** | *** NA *** | 65.9 | 379 | 66.5 | 413 | 5.55 | *** NA *** | *** NA *** | -10 |
| TOXAPHENE | *** NA *** | *** NA *** | *** NA *** | -10000 | *** NA *** | -30 | -10 | *** NA *** | *** NA *** | -25000 |
| 1,1,1-TRICHLOROETHANE | *** NA *** | *** NA *** | -4 | -3.8 | -4 | -3.8 | -4 | *** NA *** | *** NA *** | -10 |
| 1,1,2-TRICHLOROETHANE | *** NA *** | *** NA *** | -5 | -5 | -5 | -5 | -4 | *** NA *** | *** NA *** | -10 |
| TRICHLOROETHYLENE | *** NA *** | *** NA *** | -1.9 | -1.9 | -1.9 | -1.9 | -4 | *** NA *** | *** NA *** | -10 |
| TRICHLOROFLUOROMETHANE | *** NA *** | *** NA *** | -10 | -10 | -10 | -10 | -4 | *** NA *** | *** NA *** | -10 |
| 1,2,3-TRICHLOROPROPANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| VINYL CHLORIDE | *** NA *** | *** NA *** | -10 | -10 | -10 | -10 | -4 | *** NA *** | *** NA *** | -10 |
| M-XYLENE | *** NA *** | *** NA *** | 57.5 | *** NA *** | 153 | *** NA *** | 171 | *** NA *** | *** NA *** | *** NA *** |
| XYLENES | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 241 | *** NA *** | *** NA *** | 22 |

## TABLE A-2 ORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED DURING 1980 OR EARLIER (continued)

| SAMPLE NUMBER | 78-04 | 78-05 | 78-06 | 78-07 | 78-08 | 78-09 | 78-10 |
|---|---|---|---|---|---|---|---|
| DATE STARTED | 1965 | 1965 | 1965 | 1965 | 1965 | 1965 | 1965 |
| DATA SOURCE | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt |
| ACETONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ACROLEIN | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -100 | *** NA *** |
| BENZENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 13 | *** NA *** |
| BROMOMETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| BUTANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1-BUTANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-BUTANONE (MEK) | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BUTYL BENZYL PHENOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| CARBON TETRACHLORIDE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| CHLOROBENZENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 11 | *** NA *** |
| CHLOROETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| BIS(2-CHLOROETHOXY)METHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| 2-CHLOROETHYL VINYL ETHER | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| CHLOROFORM | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| CHLOROMETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| BIS(CHLOROMETHYL)ETHER | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| 2-CHLORONAPHTHALENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| P-CRESOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2,4-D | *** NA *** | *** NA *** | -50 | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 4,4-DDT | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| DIBROMOMETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| DI-N-BUTYL PHTHALATE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| 1,2-DICHLOROBENZENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| 1,4-DICHLOROBENZENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| DICHLORODIFLUOROMETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| 1,1-DICHLOROETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| 1,2-DICHLOROETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| CIS-1,2-DICHLOROETHYLENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TRANS-1,2-DICHLOROETHYLENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| 1,2-DICHLOROPROPANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| 1,3-DICHLOROPROPENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| DIETHYL PHTHALATE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| 2,4-DIMETHYLPHENOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| DIMETHYL PHTHALATE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| ENDRIN | *** NA *** | *** NA *** | -.1 | *** NA *** | *** NA *** | -10 | *** NA *** |
| ETHANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ETHYL ACETATE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ETHYL BENZENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 23 | *** NA *** |
| BIS(2-ETHYLHEXYL)PHTHALATE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| 2-HEXANONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ISOPHORONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| LINDANE | *** NA *** | *** NA *** | -2 | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 4-METHYL-2-PENTANONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| METHYLENE CHLORIDE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |

## TABLE A-2 ORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED DURING 1980 OR EARLIER (continued)

| SAMPLE NUMBER | 70-04 | 70-05 | 70-06 | 70-07 | 70-08 | 70-09 | 70-10 |
|---|---|---|---|---|---|---|---|
| DATE STARTED | 1965 | 1965 | 1965 | 1965 | 1965 | 1965 | 1965 |
| DATA SOURCE | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt |
| NAPHTHALENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 12 | *** NA *** |
| NITROBENZENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| 4-NITROPHENOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| PENTACHLOROPHENOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| PHENOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| 1-PROPANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-PROPANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,1,2,2-TETRACHLOROETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| TETRACHLOROETHYLENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| TETRAHYDROFURAN | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TOLUENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| TOXAPHENE | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** | -25000 | *** NA *** |
| 1,1,1-TRICHLOROETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| 1,1,2-TRICHLOROETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| TRICHLOROETHYLENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| TRICHLOROFLUOROMETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| 1,2,3-TRICHLOROPROPANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| VINYL CHLORIDE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** |
| M-XYLENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| XYLENES | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |

# TABLE A-3 INORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED AFTER 1980

| SAMPLE NUMBER | 27-01 | 27-02 | 27-03 | 27-03a | 68-01 | 68-02 | 68-03 | 68-04 | 68-05 | 68-06 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | 1982 | 1982 | 1982 | 1982 | 1983 | 1983 | 1983 | 1983 | 1983 | 1983 |
| DATA SOURCE | NUS | NUS | NUS | NUS | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt |
| WATER QUALITY INDICATORS | | | | | | | | | | |
| ALKALINITY | 4200 | 4000 | 3000 | 3000 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| AMMONIA | 330 | 350 | 320 | 330 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BIOLOGICAL OXYGEN DEMAND | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 60 | 70 | 300 | 420 | 61 | 13 |
| CALCIUM | 709 | 657 | 794 | 747 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHEMICAL OXYGEN DEMAND | 8500 | 8700 | 8600 | 8700 | 2100 | 320 | 330 | 1370 | 547 | 160 |
| CHLORIDE | 820 | 820 | 700 | 760 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CONDUCTIVITY (umho/cm) | 8000 | 8000 | 8000 | 8000 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| eH (mv) | 401 | 401 | 401 | 401 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| FLUORIDE | ND | ND | ND | ND | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| GROSS ALPHA | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| GROSS BETA | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| HARDNESS | 2900 | 3000 | 2000 | 2900 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| IRON | 260 | 261 | 242 | 214 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITRATE | -.1 | -.1 | .2 | -.1 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITRITE | .05 | -.04 | .05 | -.04 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (KJELDAHL) | 300 | 390 | 300 | 370 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (ORGANIC) | 50 | 40 | 60 | 40 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (TOTAL) | UNK | UNK | UNK | UNK | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| OIL & GREASE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 0.0065 | 0.0010 | 0.002 | 0.000 | 0.005 | 0.0015 |
| pH (pH units) | 7.25 | 7.25 | 7.25 | 7.25 | 7.97 | 7.47 | 7.04 | 8.2 | 8.39 | 7.61 |
| PHENOLICS, TOTAL | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 0.00004 | 0.00017 | 0.00009 | 0.00044 | 0.00005 | 0.00002 |
| PHOSPHATE | UNK | UNK | UNK | UNK | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| PHOSPHORUS | 1.5 | 2.0 | 1.3 | .53 | 2.9 | 1.4 | .73 | 2 | 2.1 | .6 |
| POTASSIUM | 453.7 | 471.0 | 471.0 | 363 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SODIUM | 817 | 822.0 | 846.3 | 752.3 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SULFATE | -20 | -20 | -20 | -20 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SULFIDE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SURFACTANT | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TEMPERATURE (Deg. Centigrade) | 11.3 | 11.3 | 11.3 | 11.3 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL DISSOLVED SOLIDS | 7020 | 31000 | 7720 | 7720 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL SUSPENDED SOLIDS | 616 | 672 | 920 | 580 | 600 | 700 | 430 | 210 | 32 | 960 |
| TOTAL ORGANIC CARBON | 2510 | 2600 | 2400 | 2400 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL ORGANIC HALOGEN | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL SOLIDS | UNK | UNK | UNK | UNK | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| OTHER INORGANICS | | | | | | | | | | |
| ALUMINUM | 2.4 | 3.4 | 2.0 | 2.2 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ANTIMONY | ND | ND | ND | ND | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ARSENIC | .011 | .008 | .000 | .014 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BARIUM | 1.64 | 1.7 | 1.57 | 1.43 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BERYLLIUM | ND | ND | ND | ND | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BORON | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CADMIUM | .003 | .003 | ND | ND | -.01 | -.01 | -.01 | -.01 | -.01 | -.01 |
| CHROMIUM (HEXAVALENT) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHROMIUM (TOTAL) | .011 | .039 | .006 | .065 | .09 | .11 | .02 | .05 | .04 | .02 |
| COBALT | ND | ND | ND | ND | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| COPPER | ND | ND | ND | ND | .07 | .02 | -.02 | -.02 | -.02 | .02 |
| CYANIDE | ND | ND | ND | ND | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| LEAD | ND | .040 | .012 | ND | -.05 | -.05 | -.05 | -.05 | -.05 | -.05 |
| MANGANESE | 8.20 | 8.07 | 8.20 | 7.59 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| MAGNESIUM | 424 | 422 | 412 | 400 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| MERCURY | ND | ND | ND | ND | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NICKEL | ND | .13 | .13 | ND | .19 | .10 | .12 | .69 | .21 | .05 |
| OSMIUM | ND | ND | ND | ND | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SELENIUM | ND | ND | ND | ND | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SILVER | ND | ND | ND | ND | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| STRONTIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| THALLIUM | ND | ND | ND | ND | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TIN | ND | ND | ND | ND | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| VANADIUM | .016 | .019 | .010 | .024 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ZINC | .44 | .51 | .30 | .33 | .57 | .11 | .06 | .27 | .13 | .21 |

# TABLE A-3 INORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED AFTER 1980 (continued)

| SAMPLE NUMBER<br>DATE STARTED<br>DATA SOURCE | 60-07<br>1983<br>Waste Mgmt | 60-08<br>1983<br>Waste Mgmt | 62-01<br>1983<br>Waste Mgmt | 62-02<br>1983<br>Waste Mgmt | 62-05<br>1983<br>Waste Mgmt | 62-06<br>1983<br>Waste Mgmt | 67-01<br>1981<br>Waste Mgmt | 67-02<br>1981<br>Waste Mgmt | 67-03<br>1981<br>Waste Mgmt | 74-01<br>1984<br>Waste Mgmt |
|---|---|---|---|---|---|---|---|---|---|---|
| WATER QUALITY INDICATORS | | | | | | | | | | |
| ALKALINITY | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| AMMONIA | ** NA ** | ** NA ** | 2.2 | 810 | ** NA ** | 76.07 | ** NA ** | .39 | 257 | 54 |
| BIOLOGICAL OXYGEN DEMAND | 460 | 3170 | ** NA ** | ** NA ** | 5900 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CALCium | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 1060 |
| CHEMICAL OXYGEN DEMAND | 800 | 4300 | ** NA ** | 16000 | 8412 | 7351 | ** NA ** | ** NA ** | ** NA ** | 6710 |
| CHLORIDE | ** NA ** | ** NA ** | 43 | 820 | ** NA ** | 510 | 1000 | 1155 | 1092 | 1390 |
| CONDUCTIVITY (umho/cm) | ** NA ** | ** NA ** | 3000 | 15000 | 9950 | 10000 | 1750 | ** NA ** | 22500 | 7000 |
| eH (av) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| FLUORIDE | ** NA ** | ** NA ** | .30 | 1.0 | ** NA ** | .54 | .4 | .4 | ** NA ** | ** NA ** |
| GROSS ALPHA | ** NA ** | ** NA ** | -0.01 | ** NA ** | ** NA ** | ** NA ** | -0.1 | -0.056 | ** NA ** | ** NA ** |
| GROSS BETA | ** NA ** | ** NA ** | 0.072 | ** NA ** | ** NA ** | ** NA ** | 0.644 | 0.561 | ** NA ** | ** NA ** |
| HARDNESS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| IRON | ** NA ** | ** NA ** | 9.2 | 2.6 | ** NA ** | 146.02 | 230 | 695 | 610 | 175 |
| NITRATE | ** NA ** | ** NA ** | -.01 | .66 | ** NA ** | .04 | -.1 | .24 | -.1 | -.1 |
| NITRITE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (KJELDAHL) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 01 |
| NITROGEN (ORGANIC) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (TOTAL) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| OIL & GREASE | 0.0017 | 0.0035 | ** NA ** | ** NA ** | 0.047 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| pH (pH units) | 6.32 | 6.35 | 6.4 | ** NA ** | 6.91 | 6.17 | 6.3 | ** NA ** | 6.70 | 6.7 |
| PHENOLICS, TOTAL | 0.0012 | 0.0010 | 0.00034 | 0.0041 | 0.00242 | ** NA ** | 0.0085 | 0.00863 | 0.00601 | ** NA ** |
| PHOSPHATE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| PHOSPHORUS | 7.9 | 6.3 | ** NA ** | ** NA ** | .29 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| POTASSIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SODIUM | ** NA ** | ** NA ** | 69 | 550 | ** NA ** | 421.15 | 2100 | 1592 | 1301 | 675 |
| SULFATE | ** NA ** | ** NA ** | 1240 | 390 | ** NA ** | 795 | 1300 | 27 | -100 | 130 |
| SULFIDE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SURFACTANT | ** NA ** | ** NA ** | ** NA ** | 0.71 | ** NA ** | 0.27 | ** NA ** | ** NA ** | ** NA ** | 0.625 |
| TEMPERATURE (Deg. Centigrade) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL DISSOLVED SOLIDS | ** NA ** | ** NA ** | 12000 | ** NA ** | ** NA ** | 7976 | ** NA ** | ** NA ** | ** NA ** | 8440 |
| TOTAL SUSPENDED SOLIDS | 210 | 200 | ** NA ** | ** NA ** | 260 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL ORGANIC CARBON | ** NA ** | ** NA ** | 20 | 370 | ** NA ** | 2362.5 | 14500 | 12000 | 7030 | 2705 |
| TOTAL ORGANIC HALOGEN | ** NA ** | ** NA ** | 0.74 | ** NA ** | ** NA ** | 1.401 | 0.655 | ** NA ** | ** NA ** | ** NA ** |
| TOTAL SOLIDS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| OTHER INORGANICS | | | | | | | | | | |
| ALUMINUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ANTIMONY | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -.1 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ARSENIC | ** NA ** | ** NA ** | -.005 | .013 | .005 | ** NA ** | .014 | .012 | -.002 | .04 |
| BARIUM | ** NA ** | ** NA ** | .00 | .5 | ** NA ** | -.2 | .33 | -.02 | .9 | .09 |
| BERYLLIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -.01 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BORON | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CADMIUM | -.01 | .01 | -.005 | .02 | -.01 | ** NA ** | .007 | -.01 | -.01 | -.01 |
| CHROMIUM (HEXAVALENT) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHROMIUM (TOTAL) | .00 | .09 | -.01 | .37 | .004 | ** NA ** | .002 | -.05 | .140 | .00 |
| COBALT | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| COPPER | .03 | .06 | ** NA ** | ** NA ** | .031 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CYANIDE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -.02 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| LEAD | -.05 | .07 | .007 | .15 | -.01 | ** NA ** | .079 | .045 | -.01 | -.03 |
| MANGANESE | ** NA ** | ** NA ** | 1 | 15.9 | ** NA ** | 10.17 | 50 | 37 | 14.6 | ** NA ** |
| MAGNESIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 275 |
| MERCURY | ** NA ** | ** NA ** | -.0003 | -.0005 | -.0005 | ** NA ** | -.002 | -.001 | -.0005 | -.01 |
| NICKEL | .91 | 1.6 | ** NA ** | ** NA ** | .269 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| OSMIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SELENIUM | ** NA ** | ** NA ** | -.005 | .002 | -.002 | ** NA ** | -.01 | -.002 | -.002 | -.01 |
| SILVER | ** NA ** | ** NA ** | -.01 | -.015 | -.025 | ** NA ** | -.01 | .026 | .037 | ** NA ** |
| STRONTIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| THALLIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TIN | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| VANADIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ZINC | 5.7 | 6.4 | ** NA ** | ** NA ** | .34 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |

# TABLE A-3 INORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED AFTER 1980 (continued)

| SAMPLE NUMBER | 74-02 | 74-03 | 79-01 |
|---|---|---|---|
| DATE STARTED | 1984 | 1984 | 1985 |
| DATA SOURCE | Waste Mgmt | Waste Mgmt | Waste Mgmt |
| WATER QUALITY INDICATORS | | | |
| ALKALINITY | ** NA ** | ** NA ** | ** NA ** |
| AMMONIA | ** NA ** | 299.16 | ** NA ** |
| BIOLOGICAL OXYGEN DEMAND | ** NA ** | ** NA ** | 15.6 |
| CALCIUM | ** NA ** | ** NA ** | ** NA ** |
| CHEMICAL OXYGEN DEMAND | ** NA ** | ** NA ** | 42 |
| CHLORIDE | 2056 | 94 | ** NA ** |
| CONDUCTIVITY (umho/cm) | 3400 | 20125 | ** NA ** |
| eH (mv) | ** NA ** | ** NA ** | ** NA ** |
| FLUORIDE | -.2 | ** NA ** | ** NA ** |
| GROSS ALPHA | -0.021 | ** NA ** | ** NA ** |
| GROSS BETA | 0.327 | ** NA ** | ** NA ** |
| HARDNESS | ** NA ** | ** NA ** | ** NA ** |
| IRON | 200 | 10.23 | ** NA ** |
| NITRATE | -.1 | -.1 | ** NA ** |
| NITRITE | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (KJELDAHL) | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (ORGANIC) | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (TOTAL) | ** NA ** | ** NA ** | ** NA ** |
| OIL & GREASE | ** NA ** | ** NA ** | ** NA ** |
| pH (pH units) | 6.2 | 6.17 | 6.2 |
| PHENOLICS, TOTAL | 0.00291 | 0.00599 | ** NA ** |
| PHOSPHATE | ** NA ** | ** NA ** | ** NA ** |
| PHOSPHORUS | ** NA ** | ** NA ** | 1.02 |
| POTASSIUM | ** NA ** | ** NA ** | ** NA ** |
| SODIUM | 456 | 2574 | ** NA ** |
| SULFATE | 24 | 30 | ** NA ** |
| SULFIDE | ** NA ** | ** NA ** | ** NA ** |
| SURFACTANT | ** NA ** | ** NA ** | ** NA ** |
| TEMPERATURE (Deg. Centigrade) | ** NA ** | ** NA ** | ** NA ** |
| TOTAL DISSOLVED SOLIDS | ** NA ** | ** NA ** | ** NA ** |
| TOTAL SUSPENDED SOLIDS | ** NA ** | ** NA ** | 950 |
| TOTAL ORGANIC CARBON | 3065 | 6360 | ** NA ** |
| TOTAL ORGANIC HALOGEN | 0.01 | ** NA ** | ** NA ** |
| TOTAL SOLIDS | ** NA ** | ** NA ** | ** NA ** |
| OTHER INORGANICS | | | |
| ALUMINUM | ** NA ** | ** NA ** | ** NA ** |
| ANTIMONY | ** NA ** | ** NA ** | ** NA ** |
| ARSENIC | .010 | .003 | ** NA ** |
| BARIUM | 1.11 | -.2 | ** NA ** |
| BERYLLIUM | ** NA ** | ** NA ** | ** NA ** |
| BORON | ** NA ** | ** NA ** | ** NA ** |
| CADMIUM | -.01 | -.01 | .006 |
| CHROMIUM (HEXAVALENT) | ** NA ** | ** NA ** | ** NA ** |
| CHROMIUM (TOTAL) | -.05 | .200 | .03 |
| COBALT | ** NA ** | ** NA ** | ** NA ** |
| COPPER | ** NA ** | ** NA ** | .04 |
| CYANIDE | ** NA ** | ** NA ** | ** NA ** |
| LEAD | .024 | -.01 | -.03 |
| MANGANESE | 25.6 | 23.6 | ** NA ** |
| MAGNESIUM | ** NA ** | ** NA ** | ** NA ** |
| MERCURY | -.0025 | -.0005 | ** NA ** |
| NICKEL | ** NA ** | ** NA ** | .00 |
| OSMIUM | ** NA ** | ** NA ** | ** NA ** |
| SELENIUM | -.002 | -.002 | ** NA ** |
| SILVER | .036 | -.02 | ** NA ** |
| STRONTIUM | ** NA ** | ** NA ** | ** NA ** |
| THALLIUM | ** NA ** | ** NA ** | ** NA ** |
| TIN | ** NA ** | ** NA ** | ** NA ** |
| VANADIUM | ** NA ** | ** NA ** | ** NA ** |
| ZINC | ** NA ** | ** NA ** | .1 |

# TABLE A-4 ORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED AFTER 1980

| SAMPLE NUMBER | 14-01 | 14-02 | 14-03 | 27-01 | 27-02 | 27-03 | 27-03a | 40-01 | 40-02 | 40-03 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | 1981 | 1981 | 1981 | 1982 | 1982 | 1982 | 1982 | 1981 | 1981 | 1981 |
| DATA SOURCE | NUS | NUS | NUS | NUS | NUS | NUS | NUS | NUS | NUS | NUS |
| ACETONE | ND | 8 | 8 | 4000 | 4100 | 4300 | 4000 | 4600 | 3000 | 1900 |
| ACROLEIN | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| BENZENE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| BROMOMETHANE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| BUTANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1-BUTANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-BUTANONE (MEK) | ND | ND | ND | 9900 | 11000 | 12000 | 10000 | 1500 | 1300 | 3000 |
| BUTYL BENZYL PHENOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| CARBON TETRACHLORIDE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| CHLOROBENZENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| CHLOROETHANE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| BIS(2-CHLOROETHOXY)METHANE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2-CHLOROETHYL VINYL ETHER | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| CHLOROFORM | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| CHLOROMETHANE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| BIS(CHLOROMETHYL)ETHER | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-CHLORONAPHTHALENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| P-CRESOL | ND | ND | ND | 4400 | 4400 | 4500 | 5100 | ND | ND | ND |
| 2,4-D | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 4,4-DDT | ND | ND | ND | .042 | .05 | .1 | .11 | .14 | .16 | .22 |
| DIBROMOMETHANE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| DI-N-BUTYL PHTHALATE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,2-DICHLOROBENZENE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,4-DICHLOROBENZENE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| DICHLORODIFLUOROMETHANE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1-DICHLOROETHANE | 4 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,2-DICHLOROETHANE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| CIS-1,2-DICHLOROETHYLENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TRANS-1,2-DICHLOROETHYLENE | 16 | 6 | 12 | ND | ND | ND | ND | ND | ND | ND |
| 1,2-DICHLOROPROPANE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,3-DICHLOROPROPENE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| DIETHYL PHTHALATE | ND | ND | ND | ND | ND | ND | ND | 32 | ND | ND |
| 2,4-DIMETHYLPHENOL | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| DIMETHYL PHTHALATE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| ENDRIN | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| ETHANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ETHYL ACETATE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ETHYL BENZENE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| BIS(2-ETHYLHEXYL)PHTHALATE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2-HEXANONE | ND | ND | ND | 690 | 41 | 360 | 370 | 400 | 39 | 85 |
| ISOPHORONE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| LINDANE | ND | ND | ND | ND | ND | .017 | .023 | ND | ND | ND |
| 4-METHYL-2-PENTANONE | ND | ND | ND | 570 | ND | 61 | 110 | 290 | ND | ND |
| METHYLENE CHLORIDE | 120 | 140 | 6 | 310 | 690 | 570 | 540 | 60 | 110 | 40 |

## TABLE A-4 ORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED AFTER 1980 (continued)

| SAMPLE NUMBER | 14-01 | 14-02 | 14-03 | 27-01 | 27-02 | 27-03 | 27-03a | 40-01 | 40-02 | 40-03 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | 1981 | 1981 | 1981 | 1982 | 1982 | 1982 | 1982 | 1981 | 1981 | 1981 |
| DATA SOURCE | NUS | NUS | NUS | NUS | NUS | NUS | NUS | NUS | NUS | NUS |
| NAPHTHALENE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| NITROBENZENE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 4-NITROPHENOL | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| PENTACHLOROPHENOL | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| PHENOL | ND | ND | ND | 1400 | 1700 | 1000 | 2100 | ND | ND | ND |
| 1-PROPANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-PROPANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,1,2,2-TETRACHLOROETHANE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| TETRACHLOROETHYLENE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| TETRAHYDROFURAN | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TOLUENE | ND | ND | ND | 540 | 550 | 610 | 590 | 1000 | 1100 | ND |
| TOXAPHENE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,1,1-TRICHLOROETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,1,2-TRICHLOROETHANE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| TRICHLOROETHYLENE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| TRICHLOROFLUOROMETHANE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,2,3-TRICHLOROPROPANE | ND | ND | ND | 230 | ND | ND | ND | ND | ND | ND |
| VINYL CHLORIDE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| M-XYLENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| XYLENES | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |

# TABLE A-4 ORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED AFTER 1980 (continued)

| SAMPLE NUMBER | 54-01 | 60-01 | 60-02 | 60-03 | 60-04 | 60-05 | 60-06 | 60-07 | 60-08 | 62-01 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | 1981 | 1983 | 1983 | 1983 | 1983 | 1983 | 1983 | 1983 | 1983 | 1983 |
| DATA SOURCE | Trade Assoc | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt |
| ACETONE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ACROLEIN | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BENZENE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BROMOMETHANE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BUTANOL | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1-BUTANOL | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-BUTANONE (MEK) | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BUTYL BENZYL PHENOL | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| CARBON TETRACHLORIDE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| CHLOROBENZENE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| CHLOROETHANE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BIS(2-CHLOROETHOXY)METHANE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-CHLOROETHYL VINYL ETHER | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| CHLOROFORM | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| CHLOROMETHANE | 400 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BIS(CHLOROMETHYL)ETHER | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-CHLORONAPHTHALENE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| P-CRESOL | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2,4-D | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 4,4-DDT | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -50 |
| DIBROMOMETHANE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| DI-N-BUTYL PHTHALATE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,2-DICHLOROBENZENE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,4-DICHLOROBENZENE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| DICHLORODIFLUOROMETHANE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,1-DICHLOROETHANE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,2-DICHLOROETHANE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| CIS-1,2-DICHLOROETHYLENE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TRANS-1,2-DICHLOROETHYLENE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,2-DICHLOROPROPANE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,3-DICHLOROPROPENE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| DIETHYL PHTHALATE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2,4-DIMETHYLPHENOL | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| DIMETHYL PHTHALATE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ENDRIN | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ETHANOL | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -.1 |
| ETHYL ACETATE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ETHYL BENZENE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BIS(2-ETHYLHEXYL)PHTHALATE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-HEXANONE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ISOPHORONE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| LINDANE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 4-METHYL-2-PENTANONE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -2 |
| METHYLENE CHLORIDE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |

# TABLE A-4 ORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED AFTER 1980 (continued)

| SAMPLE NUMBER | 54-01 | 60-01 | 60-02 | 60-03 | 60-04 | 60-05 | 60-06 | 60-07 | 60-08 | 62-01 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | 1981 | 1983 | 1983 | 1983 | 1983 | 1983 | 1983 | 1983 | 1983 | 1983 |
| DATA SOURCE | Trade Assoc | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt |
| NAPHTHALENE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| NITROBENZENE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 4-NITROPHENOL | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| PENTACHLOROPHENOL | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| PHENOL | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1-PROPANOL | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-PROPANOL | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,1,2,2-TETRACHLOROETHANE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TETRACHLOROETHYLENE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TETRAHYDROFURAN | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TOLUENE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TOXAPHENE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 |
| 1,1,1-TRICHLOROETHANE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,1,2-TRICHLOROETHANE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TRICHLOROETHYLENE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TRICHLOROFLUOROMETHANE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,2,3-TRICHLOROPROPANE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| VINYL CHLORIDE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| M-XYLENE | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| XYLENES | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |

# TABLE A-4 ORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED AFTER 1980 (continued)

| SAMPLE NUMBER | 62-02 | 62-05 | 62-06 | 67-01 | 67-02 | 67-03 | 74-01 | 74-02 | 74-03 | 79-01 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | 1983 | 1983 | 1983 | 1981 | 1981 | 1981 | 1984 | 1984 | 1984 | 1985 |
| DATA SOURCE | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt |
| ACETONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ACROLEIN | *** NA *** | -1000 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BENZENE | *** NA *** | -44 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BROMOMETHANE | *** NA *** | -100 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BUTANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1-BUTANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-BUTANONE (MEK) | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BUTYL BENZYL PHENOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| CARBON TETRACHLORIDE | *** NA *** | -20 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| CHLOROBENZENE | *** NA *** | -60 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| CHLOROETHANE | *** NA *** | -100 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BIS(2-CHLOROETHOXY)METHANE | *** NA *** | -11 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-CHLOROETHYL VINYL ETHER | *** NA *** | -100 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| CHLOROFORM | *** NA *** | -16 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| CHLOROMETHANE | *** NA *** | -100 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BIS(CHLOROMETHYL)ETHER | *** NA *** | -100 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-CHLORONAPHTHALENE | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| P-CRESOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2,4-D | *** NA *** | *** NA *** | *** NA *** | -200 | *** NA *** | *** NA *** | *** NA *** | -50 | *** NA *** | *** NA *** |
| 4,4-DDT | *** NA *** | -5.6 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| DIBROMOMETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| DI-N-BUTYL PHTHALATE | *** NA *** | -20 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,2-DICHLOROBENZENE | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,4-DICHLOROBENZENE | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| DICHLORODIFLUOROMETHANE | *** NA *** | -100 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,1-DICHLOROETHANE | *** NA *** | -47 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,2-DICHLOROETHANE | *** NA *** | -20 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| CIS-1,2-DICHLOROETHYLENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TRANS-1,2-DICHLOROETHYLENE | *** NA *** | 677 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,2-DICHLOROPROPANE | *** NA *** | -60 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,3-DICHLOROPROPENE | *** NA *** | -150 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| DIETHYL PHTHALATE | *** NA *** | -20 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2,4-DIMETHYLPHENOL | *** NA *** | -54 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| DIMETHYL PHTHALATE | *** NA *** | -20 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ENDRIN | *** NA *** | -20 | *** NA *** | -.1 | *** NA *** | *** NA *** | *** NA *** | -.1 | *** NA *** | *** NA *** |
| ETHANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ETHYL ACETATE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ETHYL BENZENE | *** NA *** | -72 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BIS(2-ETHYLHEXYL)PHTHALATE | *** NA *** | -20 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-HEXANONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ISOPHORONE | *** NA *** | 25 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| LINDANE | *** NA *** | *** NA *** | *** NA *** | -2 | *** NA *** | *** NA *** | *** NA *** | -2 | *** NA *** | *** NA *** |
| 4-METHYL-2-PENTANONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| METHYLENE CHLORIDE | *** NA *** | 55.5 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |

## TABLE A-4 ORGANIC ANALYSES OF LEACHATE FROM MSWLFs STARTED AFTER 1980 (continued)

| SAMPLE NUMBER | 62-02 | 62-05 | 62-06 | 67-01 | 67-02 | 67-03 | 74-01 | 74-02 | 74-03 | 79-01 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | 1983 | 1983 | 1983 | 1981 | 1981 | 1981 | 1984 | 1984 | 1984 | 1985 |
| DATA SOURCE | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt |
| NAPHTHALENE | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| NITROBENZENE | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 4-NITROPHENOL | *** NA *** | -40 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| PENTACHLOROPHENOL | *** NA *** | -72 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| PHENOL | *** NA *** | 370 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1-PROPANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-PROPANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,1,2,2-TETRACHLOROETHANE | *** NA *** | -69 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TETRACHLOROETHYLENE | *** NA *** | -41 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TETRAHYDROFURAN | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TOLUENE | *** NA *** | 83 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TOXAPHENE | *** NA *** | -20 | *** NA *** | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,1,1-TRICHLOROETHANE | *** NA *** | -30 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** | *** NA *** |
| 1,1,2-TRICHLOROETHANE | *** NA *** | -50 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TRICHLOROETHYLENE | *** NA *** | -19 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TRICHLOROFLUOROMETHANE | *** NA *** | -100 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,2,3-TRICHLOROPROPANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| VINYL CHLORIDE | *** NA *** | -100 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| M-XYLENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| XYLENES | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |

## TABLE A-5 INORGANIC ANALYSES OF LEACHATE FROM MSWLFs OF UNKNOWN AGE

| INORGANICS ANALYSES OF LEACHATE | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER | 01-01 | 02-04 | 03-01 | 04-01 | 05-01 | 06-01 | 07-01 | 08-01 | 09-01 | 10-01 |
| DATE STARTED | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN |
| DATA SOURCE | Sobotka | Sobotka | Sobotka | Sobotka | Sobotka | Sobotka | Sobotka | Sobotka | Sobotka | Sobotka |
| **WATER QUALITY INDICATORS** | | | | | | | | | | |
| ALKALINITY | ** NA ** | 591 | 1034 | 4600 | 2370 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| AMMONIA | ** NA ** | 50 | 14.4 | 1200 | 32.2 | 357 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BIOLOGICAL OXYGEN DEMAND | ** NA ** | 161 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CALCIUM | ** NA ** | 126 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHEMICAL OXYGEN DEMAND | ** NA ** | 472.5 | 460 | 6035 | 720 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHLORIDE | 169 | 400 | 250 | 1400.9 | 404.7 | 975 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CONDUCTIVITY (umho/cm) | ** NA ** | 3060 | 2660.5 | 10900 | 5423.5 | 13400 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| eH (mv) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| FLUORIDE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| GROSS ALPHA | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| GROSS BETA | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| HARDNESS | 568 | 705 | 1200 | 5700 | 927.65 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| IRON | 14.1 | 2.05 | 1.7 | 210 | 7.50 | 1300 | 475 | ** NA ** | ** NA ** | ** NA ** |
| NITRATE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITRITE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (KJELDAHL) | ** NA ** | 66 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (ORGANIC) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (TOTAL) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| OIL & GREASE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| pH (pH units) | 7.2 | 8 | 6.7 | 6.69 | 7.30 | 5.9 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| PHENOLICS, TOTAL | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| PHOSPHATE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| PHOSPHORUS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| POTASSIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SODIUM | 871 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SULFATE | ** NA ** | 8.7 | 105 | 346 | 123 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SULFIDE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SURFACTANT | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TEMPERATURE (Deg. Centigrade) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL DISSOLVED SOLIDS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 10100 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL SUSPENDED SOLIDS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL ORGANIC CARBON | ** NA ** | 135 | ** NA ** | 6730 | ** NA ** | 6004 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL ORGANIC HALOGEN | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL SOLIDS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| **OTHER INORGANICS** | | | | | | | | | | |
| ALUMINUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ANTIMONY | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ARSENIC | .02 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | .021 | .012 | ** NA ** | ** NA ** | ** NA ** |
| BARIUM | .34 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BERYLLIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BORON | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CADMIUM | .02 | -.001 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -.01 | ** NA ** | ** NA ** | ** NA ** |
| CHROMIUM (HEXAVALENT) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHROMIUM (TOTAL) | .05 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | .11 | .013 | ** NA ** | ** NA ** | ** NA ** |
| COBALT | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| COPPER | ** NA ** | .003 | ** NA ** | ** NA ** | ** NA ** | .07 | .05 | ** NA ** | ** NA ** | ** NA ** |
| CYANIDE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| LEAD | .14 | -.005 | ** NA ** | ** NA ** | ** NA ** | .37 | .12 | ** NA ** | ** NA ** | ** NA ** |
| MANGANESE | .57 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 43 | .26 | ** NA ** | ** NA ** | ** NA ** |
| MAGNESIUM | ** NA ** | 91.5 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| MERCURY | .0007 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NICKEL | ** NA ** | .04 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | .06 | ** NA ** | ** NA ** | ** NA ** |
| OSMIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SELENIUM | .01 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SILVER | .01 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| STRONTIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| THALLIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TIN | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| VANADIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ZINC | 1.8 | .11 | ** NA ** | ** NA ** | ** NA ** | 13 | .15 | ** NA ** | ** NA ** | ** NA ** |

# TABLE A-5 INORGANIC ANALYSES OF LEACHATE FROM MSWLFs OF UNKNOWN AGE (continued)

| INORGANICS ANALYSES OF LEACHATE | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER | 11-01 | 12-01 | 13-01 | 15-01 | 16-01 | 17-01 | 39-01 | 39-02 | 39-03 | 40-01 |
| DATE STARTED | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN |
| DATA SOURCE | Sobotka | Sobotka | Sobotka | Sobotka | Sobotka | Sobotka | MUS | MUS | MUS | Sobotka |
| WATER QUALITY INDICATORS | | | | | | | | | | |
| ALKALINITY | ** NA ** | 470 | ** NA ** | ** NA ** | 1344 | 970 | 1000 | 1000 | 1600 | ** NA ** |
| AMMONIA | 63.8 | ** NA ** | 200 | 40 | 60 | ** NA ** | 160 | 170 | 190 | 152 |
| BIOLOGICAL OXYGEN DEMAND | ** NA ** | 1700 | ** NA ** | ** NA ** | 2330 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 9044 |
| CALCIUM | ** NA ** | ** NA ** | 320 | ** NA ** | 516 | 180 | 775 | 765 | 803 | ** NA ** |
| CHEMICAL OXYGEN DEMAND | ** NA ** | ** NA ** | 1100 | 2100 | 4020 | ** NA ** | 3000 | 3300 | 3900 | 15020 |
| CHLORIDE | 310 | 120 | 900 | 182 | ** NA ** | 330 | 2100 | 2100 | 2100 | ** NA ** |
| CONDUCTIVITY (umho/cm) | 5400 | 2700 | ** NA ** | 5220 | 4004 | 2600 | 10000 | 10000 | 10000 | ** NA ** |
| eH (mv) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 383 | 383 | 383 | ** NA ** |
| FLUORIDE | ** NA ** | .12 | ** NA ** | ** NA ** | 302 | .79 | ND | ND | ND | ** NA ** |
| GROSS ALPHA | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| GROSS BETA | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| HARDNESS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 1956 | .8 | 2200 | 2200 | 2200 | ** NA ** |
| IRON | ** NA ** | ** NA ** | 230 | ** NA ** | 47.5 | .22 | 93.0 | 92.4 | 93.0 | ** NA ** |
| NITRATE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | .77 | .56 | .7 | .5 | .5 | ** NA ** |
| NITRITE | ** NA ** | -.01 | ** NA ** | ** NA ** | .03 | ** NA ** | -.04 | -.04 | -.04 | ** NA ** |
| NITROGEN (KJELDAHL) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 190 | 210 | 250 | ** NA ** |
| NITROGEN (ORGANIC) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 30 | 40 | 60 | ** NA ** |
| NITROGEN (TOTAL) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | UNK | UNK | UNK | ** NA ** |
| OIL & GREASE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| pH (pH units) | 6.8 | 7.4 | ** NA ** | 6.78 | 7.3 | 7.0 | 7.2 | 7.2 | 7.2 | 5.6 |
| PHENOLICS, TOTAL | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| PHOSPHATE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | .42 | ** NA ** | UNK | UNK | UNK | 2.13 |
| PHOSPHORUS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 1.1 | .97 | .97 | ** NA ** |
| POTASSIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 131.75 | 40 | 500.7 | 707.0 | 700.3 | ** NA ** |
| SODIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 250 | 300 | 1645.7 | 1669.2 | 2200.4 | ** NA ** |
| SULFATE | 17 | 32 | ** NA ** | 0 | 237 | 40 | -20 | -20 | -20 | ** NA ** |
| SULFIDE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SURFACTANT | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TEMPERATURE (Deg. Centigrade) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 5 | 5 | 5 | ** NA ** |
| TOTAL DISSOLVED SOLIDS | ** NA ** | ** NA ** | ** NA ** | 4010 | ** NA ** | 1400 | 1940 | 1930 | 7970 | ** NA ** |
| TOTAL SUSPENDED SOLIDS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 45 | 54 | 251 | 292 |
| TOTAL ORGANIC CARBON | 110 | ** NA ** | ** NA ** | 1000 | ** NA ** | -5 | 1250 | 1270 | 1310 | ** NA ** |
| TOTAL ORGANIC HALOGEN | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL SOLIDS | ** NA ** | 1900 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | UNK | UNK | UNK | ** NA ** |
| OTHER INORGANICS | | | | | | | | | | |
| ALUMINUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ND | ND | ND | ** NA ** |
| ANTIMONY | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | .02 | .01 | .02 | ** NA ** |
| ARSENIC | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -.001 | .01 | .008 | .012 | ** NA ** |
| BARIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | .2 | .09 | .09 | .02 | ** NA ** |
| BERYLLIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ND | ND | ND | ** NA ** |
| BORON | .63 | .99 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CADMIUM | ** NA ** | ** NA ** | .03 | ** NA ** | ** NA ** | -.0001 | .011 | .009 | .006 | ** NA ** |
| CHROMIUM (HEXAVALENT) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHROMIUM (TOTAL) | .0005 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -.02 | .009 | .011 | .013 | ** NA ** |
| COBALT | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ND | ND | ND | ** NA ** |
| COPPER | ** NA ** | ** NA ** | .13 | ** NA ** | ** NA ** | -.05 | .18 | .2 | .19 | ** NA ** |
| CYANIDE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ND | ND | ND | ** NA ** |
| LEAD | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -.001 | .010 | .01 | .022 | ** NA ** |
| MANGANESE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 41.75 | 3.2 | 11.3 | 11.2 | 11.3 | ** NA ** |
| MAGNESIUM | ** NA ** | ** NA ** | 120 | ** NA ** | 122 | 76 | 199 | 184 | 191 | ** NA ** |
| MERCURY | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -.0001 | ND | ND | ND | ** NA ** |
| NICKEL | ** NA ** | ** NA ** | .47 | ** NA ** | ** NA ** | ** NA ** | .23 | .23 | .24 | ** NA ** |
| OSMIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ND | ND | ND | ** NA ** |
| SELENIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -.001 | ND | ND | ND | ** NA ** |
| SILVER | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -.01 | ND | ND | ND | ** NA ** |
| STRONTIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| THALLIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ND | ND | ND | ** NA ** |
| TIN | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ND | ND | ND | ** NA ** |
| VANADIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | .015 | 0.015 | ND | ** NA ** |
| ZINC | .10 | ** NA ** | 34 | ** NA ** | 5.19 | -.01 | 1.21 | 1.21 | 1.21 | ** NA ** |

# TABLE A-5 INORGANIC ANALYSES OF LEACHATE FROM MSWLFs OF UNKNOWN AGE (continued)

INORGANICS ANALYSES OF LEACHATE

| SAMPLE NUMBER | 41-01 | 42-01 | 43-01 | 43-02 | 43-03 | 44-01 | 45-01 | 46-01 | 47-01 | 49-01 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN |
| DATA SOURCE | Sobotka | Sobotka | NUS | NUS | NUS | Sobotka | Sobotka | Sobotka | Sobotka | Sobotka |
| WATER QUALITY INDICATORS | | | | | | | | | | |
| ALKALINITY | ** NA ** | ** NA ** | 3600 | 3900 | 3600 | ** NA ** | 7375 | ** NA ** | ** NA ** | 3090 |
| AMMONIA | 226 | ** NA ** | 380 | 410 | 300 | 100 | 921.5 | 822.5 | ** NA ** | 279 |
| BIOLOGICAL OXYGEN DEMAND | 2550 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 117.25 |
| CALCIUM | ** NA ** | ** NA ** | 216 | 207 | 174 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 95.5 |
| CHEMICAL OXYGEN DEMAND | 11000 | ** NA ** | 1400 | 1900 | 1300 | 507.5 | 2944 | 3067 | ** NA ** | 1110 |
| CHLORIDE | 333 | ** NA ** | 1200 | 1300 | 1300 | 492.5 | 5475 | ** NA ** | ** NA ** | ** NA ** |
| CONDUCTIVITY (umho/cm) | ** NA ** | ** NA ** | 8400 | 8400 | 8400 | 3246 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| eH (av) | ** NA ** | ** NA ** | 541 | 541 | 541 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| FLUORIDE | .4 | ** NA ** | ND | ND | ND | .35 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| GROSS ALPHA | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| GROSS BETA | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| HARDNESS | ** NA ** | ** NA ** | 900 | 930 | 900 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| IRON | 230 | ** NA ** | 21.1 | 104 | 20.9 | ** NA ** | 5.77 | ** NA ** | ** NA ** | 0.65 |
| NITRATE | ** NA ** | ** NA ** | -.1 | -.1 | -.1 | .02 | 50.93 | ** NA ** | ** NA ** | .34 |
| NITRITE | ** NA ** | ** NA ** | -.05 | -.05 | -.05 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (KJELDAHL) | ** NA ** | ** NA ** | 410 | 420 | 450 | ** NA ** | 930 | ** NA ** | ** NA ** | 427.5 |
| NITROGEN (ORGANIC) | ** NA ** | ** NA ** | 70 | 10 | 70 | ** NA ** | ** NA ** | 62.5 | ** NA ** | ** NA ** |
| NITROGEN (TOTAL) | ** NA ** | ** NA ** | UNK | UNK | UNK | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| OIL & GREASE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| pH (pH units) | 6.6 | ** NA ** | 7.3 | 7.3 | 7.3 | ** NA ** | 7.55 | ** NA ** | ** NA ** | 7.13 |
| PHENOLICS, TOTAL | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| PHOSPHATE | ** NA ** | ** NA ** | UNK | UNK | UNK | ** NA ** | 0.7 | ** NA ** | ** NA ** | ** NA ** |
| PHOSPHORUS | ** NA ** | ** NA ** | 1.7 | 2.3 | 1.5 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| POTASSIUM | ** NA ** | ** NA ** | 613.5 | 526.3 | 500.1 | ** NA ** | ** NA ** | ** NA ** | 937 | ** NA ** |
| SODIUM | 344 | ** NA ** | 1075.6 | 1487.0 | 1134.3 | ** NA ** | ** NA ** | ** NA ** | 929 | ** NA ** |
| SULFATE | 57 | ** NA ** | 56 | 42 | 57 | 55.5 | 130 | ** NA ** | ** NA ** | ** NA ** |
| SULFIDE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SURFACTANT | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TEMPERATURE (Deg. Centigrade) | ** NA ** | ** NA ** | 21.1 | 21.1 | 21.1 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL DISSOLVED SOLIDS | 9000 | ** NA ** | 4800 | 5130 | 5040 | 4325 | 7586.5 | ** NA ** | ** NA ** | 4761 |
| TOTAL SUSPENDED SOLIDS | ** NA ** | ** NA ** | 104 | 2220 | 100 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 51.55 |
| TOTAL ORGANIC CARBON | ** NA ** | ** NA ** | 461 | 438 | 440 | ** NA ** | 630 | ** NA ** | ** NA ** | 469 |
| TOTAL ORGANIC HALOGEN | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL SOLIDS | ** NA ** | ** NA ** | UNK | UNK | UNK | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| OTHER INORGANICS | | | | | | | | | | |
| ALUMINUM | ** NA ** | ** NA ** | ND | ND | ND | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ANTIMONY | ** NA ** | ** NA ** | ND | ND | ND | ** NA ** | ** NA ** | ** NA ** | 1.1 | ** NA ** |
| ARSENIC | .00 | ** NA ** | .044 | .046 | .044 | -.01 | .02 | ** NA ** | ** NA ** | .02 |
| BARIUM | .425 | ** NA ** | .27 | .41 | .34 | .215 | ** NA ** | ** NA ** | ** NA ** | .20 |
| BERYLLIUM | ** NA ** | .005 | ND | ND | ND | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BORON | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CADMIUM | .04 | ** NA ** | ND | ND | ND | -.005 | -.003 | .0007 | ** NA ** | .02 |
| CHROMIUM (HEXAVALENT) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHROMIUM (TOTAL) | .02 | ** NA ** | ND | .005 | .008 | .01 | ** NA ** | .02 | ** NA ** | .15 |
| COBALT | ** NA ** | ** NA ** | ND | ND | ND | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| COPPER | .15 | ** NA ** | ND | ND | ND | ** NA ** | .12 | ** NA ** | ** NA ** | ** NA ** |
| CYANIDE | .02 | ** NA ** | ND | ND | ND | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| LEAD | .04 | ** NA ** | .026 | .027 | .010 | .01 | -.01 | .03 | 1.05 | .00 |
| MANGANESE | 9.4 | ** NA ** | 1.31 | 1.40 | 1.29 | ** NA ** | ** NA ** | ** NA ** | 1.06 | .60 |
| MAGNESIUM | ** NA ** | ** NA ** | 110 | 124 | 114 | ** NA ** | ** NA ** | ** NA ** | 927 | 135.5 |
| MERCURY | .0000 | ** NA ** | ND | ND | ND | .0005 | ** NA ** | .006 | ** NA ** | .0004 |
| NICKEL | .2 | ** NA ** | .13 | .14 | ND | ** NA ** | .34 | ** NA ** | 1.07 | ** NA ** |
| OSMIUM | ** NA ** | ** NA ** | ND | ND | ND | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SELENIUM | .01 | .01 | ND | ND | ND | .005 | ** NA ** | ** NA ** | ** NA ** | .01 |
| SILVER | .05 | ** NA ** | ND | ND | ND | -.01 | ** NA ** | ** NA ** | ** NA ** | .02 |
| STRONTIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| THALLIUM | ** NA ** | .00 | ND | ND | ND | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TIN | ** NA ** | ** NA ** | ND | ND | ND | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| VANADIUM | ** NA ** | ** NA ** | .017 | .029 | .024 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ZINC | .05 | .65 | .15 | .09 | .12 | ** NA ** | 1.66 | ** NA ** | 1.09 | .00 |

# TABLE A-5 INORGANIC ANALYSES OF LEACHATE FROM MSWLFs OF UNKNOWN AGE (continued)

| INORGANICS ANALYSES OF LEACHATE | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE NUMBER | 50-01 | 51-01 | 52-01 | 66-01 | 70-01 | 75-04 | 76-01 | 76-02 | 80-01 | 80-02 |
| DATE STARTED | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN |
| DATA SOURCE | Sobotka | Sobotka | Sobotka | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt |
| WATER QUALITY INDICATORS | | | | | | | | | | |
| ALKALINITY | ** NA ** | 766 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| AMMONIA | 324.75 | 11.3 | ** NA ** | 53 | ** NA ** | ** NA ** | 130 | 520 | ** NA ** | ** NA ** |
| BIOLOGICAL OXYGEN DEMAND | 2290 | 7 | ** NA ** | 2650 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 126.7 |
| CALCIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHEMICAL OXYGEN DEMAND | 3410 | 440 | 4160 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 690 | 317 |
| CHLORIDE | 695 | 440 | 380 | ** NA ** | 270 | ** NA ** | 310 | 1600 | ** NA ** | ** NA ** |
| CONDUCTIVITY (umho/cm) | 3987 | 2700 | 7840 | 1990 | 5625 | 8000 | 2715 | 11825 | 4500 | 3000 |
| eH (mv) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| FLUORIDE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | .20 | ** NA ** | 2.00 | ** NA ** | ** NA ** | ** NA ** |
| GROSS ALPHA | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -0.0002 | ** NA ** | ** NA ** | ** NA ** |
| GROSS BETA | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 0.1 | ** NA ** | ** NA ** | ** NA ** |
| HARDNESS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| IRON | 690 | 24.4 | 350 | ** NA ** | 306 | ** NA ** | 26.2 | ** NA ** | 0 | ** NA ** |
| NITRATE | .2 | .0 | 3.6 | ** NA ** | -.1 | ** NA ** | 3.7 | ** NA ** | ** NA ** | ** NA ** |
| NITRITE | .2 | .01 | .007 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (KJELDAHL) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (ORGANIC) | 70.2 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (TOTAL) | 504.5 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| OIL & GREASE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| pH (pH units) | 6.2 | ** NA ** | 6.4 | 6.7 | 5.47 | 7.40 | 8.02 | 7.22 | 6.0 | 6.04 |
| PHENOLICS, TOTAL | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 0.00019 | ** NA ** | 0.00012 | ** NA ** |
| PHOSPHATE | ** NA ** | ND | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| PHOSPHORUS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| POTASSIUM | ** NA ** | 30 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SODIUM | ** NA ** | 104 | ** NA ** | ** NA ** | 296 | ** NA ** | 251 | ** NA ** | ** NA ** | ** NA ** |
| SULFATE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 60 | ** NA ** | ** NA ** | ** NA ** |
| SULFIDE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SURFACTANT | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TEMPERATURE (Deg. Centigrade) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL DISSOLVED SOLIDS | 7944.5 | 1400 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL SUSPENDED SOLIDS | 310 | ** NA ** | ** NA ** | 30 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL ORGANIC CARBON | 960 | ** NA ** | ** NA ** | ** NA ** | 2700 | ** NA ** | 170 | 620 | ** NA ** | ** NA ** |
| TOTAL ORGANIC HALOGEN | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 0.94 | ** NA ** | 0.415 | ** NA ** | ** NA ** | ** NA ** |
| TOTAL SOLIDS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| OTHER INORGANICS | | | | | | | | | | |
| ALUMINUM | ** NA ** | ** NA ** | ** NA ** | .19 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ANTIMONY | 47 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ARSENIC | .01 | ** NA ** | ND | ** NA ** | .011 | ** NA ** | -.01 | ** NA ** | ** NA ** | ** NA ** |
| BARIUM | ** NA ** | ** NA ** | .5 | ** NA ** | .10 | ** NA ** | .33 | ** NA ** | ** NA ** | ** NA ** |
| BERYLLIUM | .01 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BORON | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CADMIUM | .02 | .005 | .012 | -.01 | .006 | ** NA ** | -.005 | ** NA ** | .039 | .02 |
| CHROMIUM (HEXAVALENT) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHROMIUM (TOTAL) | .10 | .001 | .016 | -.05 | .740 | ** NA ** | -.01 | ** NA ** | .012 | .01 |
| COBALT | ** NA ** | ** NA ** | .04 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| COPPER | .05 | .025 | .05 | .035 | -.02 | ** NA ** | ** NA ** | ** NA ** | .016 | .06 |
| CYANIDE | .004 | -.005 | ND | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -.01 | ** NA ** |
| LEAD | .3 | .05 | .06 | .132 | .065 | ** NA ** | .01 | ** NA ** | -.005 | .16 |
| MANGANESE | ** NA ** | .02 | ** NA ** | ** NA ** | 21.1 | ** NA ** | 3.76 | ** NA ** | ** NA ** | ** NA ** |
| MAGNESIUM | 99.5 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| MERCURY | .0004 | ** NA ** | .005 | ** NA ** | -.003 | ** NA ** | -.0003 | ** NA ** | -.0005 | ** NA ** |
| NICKEL | .04 | .05 | .04 | .113 | .29 | ** NA ** | ** NA ** | ** NA ** | .051 | .06 |
| OSMIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SELENIUM | .005 | ** NA ** | .02 | ** NA ** | -.005 | ** NA ** | -.005 | ** NA ** | ** NA ** | ** NA ** |
| SILVER | .02 | ** NA ** | .032 | ** NA ** | -.01 | ** NA ** | -.01 | ** NA ** | -.01 | ** NA ** |
| STRONTIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| THALLIUM | .08 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TIN | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| VANADIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ZINC | 67 | .67 | .12 | .24 | 7.27 | ** NA ** | ** NA ** | ** NA ** | .10 | .26 |

## TABLE A-6 ORGANIC ANALYSES OF LEACHATE FROM MSWLFs OF UNKNOWN AGE

| SAMPLE NUMBER | 01-01 | 06-01 | 07-01 | 08-01 | 09-01 | 10-01 | 11-01 | 12-01 | 13-01 | 15-01 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN |
| DATA SOURCE | Sobotka | Sobotka | Sobotka | Sobotka | Sobotka | Sobotka | Sobotka | Sobotka | Sobotka | Sobotka |
| ACETONE | *** NA *** | 11000 | *** NA *** | *** NA *** | *** NA *** | 7500 | 140 | *** NA *** | *** NA *** | *** NA *** |
| ACROLEIN | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BENZENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BROMOMETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BUTANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1-BUTANOL | *** NA *** | 360 | *** NA *** | *** NA *** | *** NA *** | 320 | -50 | *** NA *** | *** NA *** | *** NA *** |
| 2-BUTANONE (MEK) | *** NA *** | 2000 | *** NA *** | *** NA *** | *** NA *** | 8300 | 110 | *** NA *** | *** NA *** | *** NA *** |
| BUTYL BENZYL PHENOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| CARBON TETRACHLORIDE | *** NA *** | *** NA *** | *** NA *** | -25 | -5 | -4 | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| CHLOROBENZENE | *** NA *** | *** NA *** | *** NA *** | 60 | -5 | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| CHLOROETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BIS(2-CHLOROETHOXY)METHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-CHLOROETHYL VINYL ETHER | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| CHLOROFORM | *** NA *** | *** NA *** | *** NA *** | -10 | -2 | -4 | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| CHLOROMETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BIS(CHLOROMETHYL)ETHER | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-CHLORONAPHTHALENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| P-CRESOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2,4-D | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 4,4-DDT | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| DIBROMOMETHANE | *** NA *** | *** NA *** | *** NA *** | -25 | 5 | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| DI-N-BUTYL PHTHALATE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,2-DICHLOROBENZENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,4-DICHLOROBENZENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -7.7 | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| DICHLORODIFLUOROMETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,1-DICHLOROETHANE | *** NA *** | *** NA *** | *** NA *** | 35 | 46 | 13 | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,2-DICHLOROETHANE | *** NA *** | *** NA *** | *** NA *** | -10 | *** NA *** | -4 | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| CIS-1,2-DICHLOROETHYLENE | *** NA *** | *** NA *** | *** NA *** | 190 | *** NA *** | -4 | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TRANS-1,2-DICHLOROETHYLENE | *** NA *** | *** NA *** | *** NA *** | 17 | 3.0 | -4 | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,2-DICHLOROPROPANE | *** NA *** | *** NA *** | *** NA *** | 13 | 2 | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,3-DICHLOROPROPENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| DIETHYL PHTHALATE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2,4-DIMETHYLPHENOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| DIMETHYL PHTHALATE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ENDRIN | .04 | 50 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ETHANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ETHYL ACETATE | *** NA *** | -50 | *** NA *** | *** NA *** | *** NA *** | 42 | -5 | *** NA *** | *** NA *** | *** NA *** |
| ETHYL BENZENE | *** NA *** | 500 | *** NA *** | *** NA *** | *** NA *** | 30 | 12 | *** NA *** | *** NA *** | *** NA *** |
| BIS(2-ETHYLHEXYL)PHTHALATE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-HEXANONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ISOPHORONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| LINDANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 4-METHYL-2-PENTANONE | *** NA *** | 660 | *** NA *** | *** NA *** | *** NA *** | 270 | 10 | *** NA *** | *** NA *** | *** NA *** |
| METHYLENE CHLORIDE | *** NA *** | *** NA *** | *** NA *** | 64 | 200 | 260 | *** NA *** | *** NA *** | *** NA *** | *** NA *** |

## TABLE A-6 ORGANIC ANALYSES OF LEACHATE FROM MSWLFs OF UNKNOWN AGE (continued)

| SAMPLE NUMBER | 01-01 | 06-01 | 07-01 | 08-01 | 09-01 | 10-01 | 11-01 | 12-01 | 13-01 | 15-01 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN |
| DATA SOURCE | Sobotka | Sobotka | Sobotka | Sobotka | Sobotka | Sobotka | Sobotka | Sobotka | Sobotka | Sobotka |
| NAPHTHALENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| NITROBENZENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 4-NITROPHENOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| PENTACHLOROPHENOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| PHENOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1-PROPANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-PROPANOL | *** NA *** | 6900 | *** NA *** | *** NA *** | *** NA *** | 10000 | 94 | *** NA *** | *** NA *** | *** NA *** |
| 1,1,2,2-TETRACHLOROETHANE | *** NA *** | *** NA *** | *** NA *** | -100 | -20 | -40 | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TETRACHLOROETHYLENE | *** NA *** | *** NA *** | *** NA *** | -100 | -20 | -40 | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TETRAHYDROFURAN | *** NA *** | -5 | *** NA *** | *** NA *** | *** NA *** | 260 | 10 | *** NA *** | *** NA *** | *** NA *** |
| TOLUENE | *** NA *** | 510 | *** NA *** | *** NA *** | *** NA *** | 52 | 7.5 | *** NA *** | *** NA *** | *** NA *** |
| TOXAPHENE | 1 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,1,1-TRICHLOROETHANE | *** NA *** | *** NA *** | *** NA *** | -10 | 7.6 | -4 | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,1,2-TRICHLOROETHANE | *** NA *** | *** NA *** | *** NA *** | -10 | -2 | -4 | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TRICHLOROETHYLENE | *** NA *** | *** NA *** | *** NA *** | 43 | 43 | 1.2 | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TRICHLOROFLUOROMETHANE | *** NA *** | *** NA *** | *** NA *** | -10 | 15 | -7 | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,2,3-TRICHLOROPROPANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| VINYL CHLORIDE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| M-XYLENE | *** NA *** | 79 | *** NA *** | *** NA *** | *** NA *** | 21 | 26 | *** NA *** | *** NA *** | *** NA *** |
| XYLENES | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |

## TABLE A-6 ORGANIC ANALYSES OF LEACHATE FROM MSWLFs OF UNKNOWN AGE (continued)

| SAMPLE NUMBER | 17-01 | 39-01 | 39-02 | 39-03 | 40-01 | 41-01 | 42-01 | 43-01 | 43-02 | 43-03 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN |
| DATA SOURCE | Sobotka | NUS | NUS | NUS | Sobotka | Sobotka | Sobotka | NUS | NUS | NUS |
| ACETONE | *** NA *** | 810 | 150 | ND | *** NA *** | *** NA *** | *** NA *** | 180 | 430 | 1500 |
| ACROLEIN | *** NA *** | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | ND | ND | ND |
| BENZENE | -2 | ND | ND | ND | *** NA *** | *** NA *** | 8 | ND | ND | ND |
| BROMOMETHANE | -10 | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | ND | ND | ND |
| BUTANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1-BUTANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-BUTANONE (MEK) | *** NA *** | 2200 | 1600 | ND | *** NA *** | *** NA *** | *** NA *** | 120 | 730 | 1100 |
| BUTYL BENZYL PHENOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| CARBON TETRACHLORIDE | -2 | ND | ND | ND | *** NA *** | *** NA *** | 6 | ND | ND | ND |
| CHLOROBENZENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| CHLOROETHANE | -5 | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | ND | ND | ND |
| BIS(2-CHLOROETHOXY)METHANE | -2 | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | ND | ND | ND |
| 2-CHLOROETHYL VINYL ETHER | *** NA *** | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | ND | ND | ND |
| CHLOROFORM | -2 | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | ND | ND | ND |
| CHLOROMETHANE | -10 | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | ND | ND | ND |
| BIS(CHLOROMETHYL)ETHER | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-CHLORONAPHTHALENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| P-CRESOL | *** NA *** | 5100 | ND | ND | *** NA *** | *** NA *** | *** NA *** | 210 | ND | ND |
| 2,4-D | *** NA *** | 130 | ND | 160 | *** NA *** | *** NA *** | *** NA *** | ND | ND | ND |
| 4,4-DDT | *** NA *** | .053 | .090 | .099 | *** NA *** | *** NA *** | *** NA *** | .12 | .12 | .13 |
| DIBROMOMETHANE | *** NA *** | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | ND | ND | ND |
| DI-N-BUTYL PHTHALATE | -4 | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | ND | ND | ND |
| 1,2-DICHLOROBENZENE | *** NA *** | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | ND | ND | ND |
| 1,4-DICHLOROBENZENE | -2 | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | ND | ND | ND |
| DICHLORODIFLUOROMETHANE | *** NA *** | ND | ND | ND | 369 | *** NA *** | *** NA *** | ND | ND | ND |
| 1,1-DICHLOROETHANE | -5 | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | ND | ND | ND |
| 1,2-DICHLOROETHANE | -5 | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | ND | ND | ND |
| CIS-1,2-DICHLOROETHYLENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TRANS-1,2-DICHLOROETHYLENE | -5 | ND | ND | ND | 230 | *** NA *** | *** NA *** | ND | ND | ND |
| 1,2-DICHLOROPROPANE | *** NA *** | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | ND | ND | ND |
| 1,3-DICHLOROPROPENE | *** NA *** | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | ND | ND | ND |
| DIETHYL PHTHALATE | -2 | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | ND | ND | ND |
| 2,4-DIMETHYLPHENOL | *** NA *** | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | ND | ND | ND |
| DIMETHYL PHTHALATE | -4 | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | ND | ND | ND |
| ENDRIN | *** NA *** | .25 | ND | ND | *** NA *** | *** NA *** | *** NA *** | ND | ND | ND |
| ETHANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ETHYL ACETATE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ETHYL BENZENE | -5 | ND | ND | ND | *** NA *** | *** NA *** | 10 | ND | 15 | 240 |
| BIS(2-ETHYLHEXYL)PHTHALATE | -6 | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | ND | ND | ND |
| 2-HEXANONE | *** NA *** | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | ND | 68 | 450 |
| ISOPHORONE | -10 | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | ND | ND | ND |
| LINDANE | *** NA *** | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | ND | ND | ND |
| 4-METHYL-2-PENTANONE | *** NA *** | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | ND | ND | 80 |
| METHYLENE CHLORIDE | -2 | 90 | 170 | 190 | 1030 | *** NA *** | 60 | 240 | 30 | 30 |

## TABLE A-6 ORGANIC ANALYSES OF LEACHATE FROM MSWLFs OF UNKNOWN AGE (continued)

| SAMPLE NUMBER | 17-01 | 39-01 | 39-02 | 39-03 | 40-01 | 41-01 | 42-01 | 43-01 | 43-02 | 43-03 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN |
| DATA SOURCE | Sobotka | NUS | NUS | NUS | Sobotka | Sobotka | Sobotka | NUS | NUS | NUS |
| NAPHTHALENE | 4 | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | ND | ND | ND |
| NITROBENZENE | -2 | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | ND | ND | ND |
| 4-NITROPHENOL | -40 | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | ND | ND | ND |
| PENTACHLOROPHENOL | -3 | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | ND | ND | ND |
| PHENOL | -15 | 2100 | ND | ND | 20000 | 6500 | 30 | 89 | 90 | 70 |
| 1-PROPANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-PROPANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,1,2,2-TETRACHLOROETHANE | -7 | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | ND | ND | ND |
| TETRACHLOROETHYLENE | -2 | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | ND | ND | ND |
| TETRAHYDROFURAN | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TOLUENE | -2 | 120 | 120 | ND | 320 | *** NA *** | 10 | 94 | 73 | 73 |
| TOXAPHENE | *** NA *** | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | ND | ND | ND |
| 1,1,1-TRICHLOROETHANE | -2 | *** NA *** | *** NA *** | *** NA *** | 200 | *** NA *** | 1 | *** NA *** | *** NA *** | *** NA *** |
| 1,1,2-TRICHLOROETHANE | -7 | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | ND | ND | ND |
| TRICHLOROETHYLENE | *** NA *** | ND | ND | ND | 5 | *** NA *** | *** NA *** | ND | ND | ND |
| TRICHLOROFLUOROMETHANE | 4 | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | ND | ND | ND |
| 1,2,3-TRICHLOROPROPANE | *** NA *** | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | ND | ND | ND |
| VINYL CHLORIDE | -5 | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | ND | ND | ND |
| M-XYLENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| XYLENES | *** NA *** | ND | ND | ND | *** NA *** | *** NA *** | *** NA *** | ND | ND | ND |

## TABLE A-6 ORGANIC ANALYSES OF LEACHATE FROM MSWLFs OF UNKNOWN AGE (continued)

| SAMPLE NUMBER | 44-01 | 45-01 | 46-01 | 47-01 | 49-01 | 50-01 | 51-01 | 52-01 | 55-01 | 56-01 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN |
| DATA SOURCE | Sobotka | Sobotka | Sobotka | Sobotka | Sobotka | Sobotka | Sobotka | Sobotka | Trade Assoc | Texas |
| ACETONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | >> UNK << |
| ACROLEIN | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | >> UNK << |
| BENZENE | *** NA *** | 4.3 | *** NA *** | *** NA *** | 26 | *** NA *** | *** NA *** | *** NA *** | >> UNK << | 540 |
| BROMOMETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | >> UNK << |
| BUTANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | 10000 |
| 1-BUTANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | >> UNK << |
| 2-BUTANONE (MEK) | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | 27000 |
| BUTYL BENZYL PHENOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | >> UNK << |
| CARBON TETRACHLORIDE | *** NA *** | 397.5 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | >> UNK << |
| CHLOROBENZENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 237 | *** NA *** | *** NA *** | *** NA *** | >> UNK << | >> UNK << |
| CHLOROETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | >> UNK << |
| BIS(2-CHLOROETHOXY)METHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | >> UNK << |
| 2-CHLOROETHYL VINYL ETHER | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | >> UNK << |
| CHLOROFORM | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 100 | >> UNK << | >> UNK << |
| CHLOROMETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 175 | >> UNK << |
| BIS(CHLOROMETHYL)ETHER | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | >> UNK << |
| 2-CHLORONAPHTHALENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | >> UNK << |
| P-CRESOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | >> UNK << |
| 2,4-D | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | >> UNK << |
| 4,4-DDT | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | >> UNK << |
| DIBROMOMETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | >> UNK << |
| DI-N-BUTYL PHTHALATE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | >> UNK << |
| 1,2-DICHLOROBENZENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | 18 |
| 1,4-DICHLOROBENZENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | 14 |
| DICHLORODIFLUOROMETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | >> UNK << |
| 1,1-DICHLOROETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 140 | >> UNK << | 26 |
| 1,2-DICHLOROETHANE | *** NA *** | -.03 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | -5 | >> UNK << | 6 |
| CIS-1,2-DICHLOROETHYLENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | 470 |
| TRANS-1,2-DICHLOROETHYLENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | 60 |
| 1,2-DICHLOROPROPANE | *** NA *** | 0.03 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | 81 |
| 1,3-DICHLOROPROPENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | >> UNK << |
| DIETHYL PHTHALATE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | >> UNK << |
| 2,4-DIMETHYLPHENOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | >> UNK << |
| DIMETHYL PHTHALATE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | >> UNK << |
| ENDRIN | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | >> UNK << |
| ETHANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | 23000 |
| ETHYL ACETATE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | 130 |
| ETHYL BENZENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 42.25 | *** NA *** | *** NA *** | *** NA *** | >> UNK << | 250 |
| BIS(2-ETHYLHEXYL)PHTHALATE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | >> UNK << |
| 2-HEXANONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | >> UNK << |
| ISOPHORONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | >> UNK << |
| LINDANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | >> UNK << |
| 4-METHYL-2-PENTANONE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | 710 |
| METHYLENE CHLORIDE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 5 | *** NA *** | *** NA *** | 3300 | >> UNK << | 1300 |

## TABLE A-6 ORGANIC ANALYSES OF LEACHATE FROM MSWLFs OF UNKNOWN AGE (continued)

| SAMPLE NUMBER | 44-01 | 45-01 | 46-01 | 47-01 | 49-01 | 50-01 | 51-01 | 52-01 | 55-01 | 56-01 |
|---|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN |
| DATA SOURCE | Sobotka | Sobotka | Sobotka | Sobotka | Sobotka | Sobotka | Sobotka | Sobotka | Trade Assoc | Texas |
| NAPHTHALENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | >> UNK << |
| NITROBENZENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | >> UNK << |
| 4-NITROPHENOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | >> UNK << |
| PENTACHLOROPHENOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | >> UNK << |
| PHENOL | *** NA *** | 29.5 | 724.5 | *** NA *** | *** NA *** | 1400 | *** NA *** | *** NA *** | >> UNK << | 11000 |
| 1-PROPANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | 26000 |
| 2-PROPANOL | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | >> UNK << |
| 1,1,2,2-TETRACHLOROETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | 250 |
| TETRACHLOROETHYLENE | *** NA *** | 94.52 | *** NA *** | *** NA *** | 80 | *** NA *** | *** NA *** | *** NA *** | >> UNK << | 430 |
| TETRAHYDROFURAN | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | 600 |
| TOLUENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 12.75 | *** NA *** | *** NA *** | *** NA *** | >> UNK << | >> UNK << |
| TOXAPHENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | >> UNK << |
| 1,1,1-TRICHLOROETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 80 | >> UNK << | >> UNK << |
| 1,1,2-TRICHLOROETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | >> UNK << |
| TRICHLOROETHYLENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 1 | *** NA *** | *** NA *** | -2 | >> UNK << | 125 |
| TRICHLOROFLUOROMETHANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 150 | >> UNK << |
| 1,2,3-TRICHLOROPROPANE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | >> UNK << |
| VINYL CHLORIDE | *** NA *** | -.10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | >> UNK << |
| M-XYLENE | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | >> UNK << |
| XYLENES | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | >> UNK << | 190 |

## TABLE A-6 ORGANIC ANALYSES OF LEACHATE FROM MSWLFs OF UNKNOWN AGE (continued)

| SAMPLE NUMBER | 57-01 | 58-01 | 59-01 | 66-01 | 70-01 | 76-01 | 76-02 | 80-01 | 80-02 |
|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN |
| DATA SOURCE | Trade Assoc | Trade Assoc | Trade Assoc | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt |
| ACETONE | >> UNK << | >> UNK << | >> UNK << | *** NA *** | 123 | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ACROLEIN | >> UNK << | >> UNK << | >> UNK << | -100 | -100 | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BENZENE | >> UNK << | >> UNK << | >> UNK << | -4.4 | -4.4 | *** NA *** | *** NA *** | -1 | *** NA *** |
| BROMOMETHANE | >> UNK << | >> UNK << | >> UNK << | -10 | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BUTANOL | >> UNK << | >> UNK << | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1-BUTANOL | >> UNK << | >> UNK << | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-BUTANONE (MEK) | >> UNK << | >> UNK << | >> UNK << | *** NA *** | 496 | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BUTYL BENZYL PHENOL | >> UNK << | >> UNK << | >> UNK << | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| CARBON TETRACHLORIDE | >> UNK << | >> UNK << | >> UNK << | -2.8 | -2.8 | *** NA *** | *** NA *** | -1 | *** NA *** |
| CHLOROBENZENE | >> UNK << | 520 | >> UNK << | -6 | -6 | *** NA *** | *** NA *** | 1.1 | *** NA *** |
| CHLOROETHANE | >> UNK << | >> UNK << | >> UNK << | -10 | 14.7 | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BIS(2-CHLOROETHOXY)METHANE | >> UNK << | >> UNK << | >> UNK << | -5.4 | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-CHLOROETHYL VINYL ETHER | >> UNK << | >> UNK << | >> UNK << | -10 | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| CHLOROFORM | >> UNK << | >> UNK << | >> UNK << | -1.6 | -1.6 | *** NA *** | *** NA *** | -1 | *** NA *** |
| CHLOROMETHANE | >> UNK << | >> UNK << | >> UNK << | -10 | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| BIS(CHLOROMETHYL)ETHER | >> UNK << | >> UNK << | >> UNK << | -100 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-CHLORONAPHTHALENE | >> UNK << | >> UNK << | >> UNK << | -1.9 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| P-CRESOL | >> UNK << | >> UNK << | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2,4-D | >> UNK << | >> UNK << | >> UNK << | *** NA *** | 100 | -50 | *** NA *** | *** NA *** | *** NA *** |
| 4,4-DDT | >> UNK << | >> UNK << | >> UNK << | -2.8 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| DIBROMOMETHANE | >> UNK << | >> UNK << | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| DI-N-BUTYL PHTHALATE | >> UNK << | >> UNK << | >> UNK << | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,2-DICHLOROBENZENE | >> UNK << | >> UNK << | >> UNK << | -1.9 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,4-DICHLOROBENZENE | >> UNK << | >> UNK << | >> UNK << | -4.4 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| DICHLORODIFLUOROMETHANE | >> UNK << | >> UNK << | >> UNK << | -10 | 10.3 | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,1-DICHLOROETHANE | >> UNK << | 44000 | >> UNK << | -4.7 | 51.4 | *** NA *** | *** NA *** | -1 | *** NA *** |
| 1,2-DICHLOROETHANE | >> UNK << | >> UNK << | >> UNK << | -2.8 | -2.8 | *** NA *** | *** NA *** | -1 | *** NA *** |
| CIS-1,2-DICHLOROETHYLENE | >> UNK << | >> UNK << | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| TRANS-1,2-DICHLOROETHYLENE | >> UNK << | 4000 | >> UNK << | -1.6 | 5.6 | *** NA *** | *** NA *** | 2 | *** NA *** |
| 1,2-DICHLOROPROPANE | >> UNK << | 500 | >> UNK << | -6 | -6 | *** NA *** | *** NA *** | -1 | *** NA *** |
| 1,3-DICHLOROPROPENE | >> UNK << | >> UNK << | >> UNK << | -15 | -15 | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| DIETHYL PHTHALATE | 83 | >> UNK << | 150 | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2,4-DIMETHYLPHENOL | >> UNK << | >> UNK << | >> UNK << | -55 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| DIMETHYL PHTHALATE | >> UNK << | >> UNK << | >> UNK << | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ENDRIN | >> UNK << | >> UNK << | >> UNK << | -10 | -.1 | -.1 | *** NA *** | *** NA *** | *** NA *** |
| ETHANOL | >> UNK << | >> UNK << | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ETHYL ACETATE | >> UNK << | >> UNK << | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ETHYL BENZENE | >> UNK << | >> UNK << | >> UNK << | -7.2 | -7.2 | *** NA *** | *** NA *** | 240 | *** NA *** |
| BIS(2-ETHYLHEXYL)PHTHALATE | >> UNK << | 750 | >> UNK << | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 16 |
| 2-HEXANONE | >> UNK << | >> UNK << | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| ISOPHORONE | >> UNK << | >> UNK << | >> UNK << | -2.2 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| LINDANE | >> UNK << | >> UNK << | >> UNK << | *** NA *** | -2 | -2 | *** NA *** | *** NA *** | *** NA *** |
| 4-METHYL-2-PENTANONE | >> UNK << | >> UNK << | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| METHYLENE CHLORIDE | >> UNK << | 220000 | >> UNK << | 10.0 | 639 | *** NA *** | *** NA *** | 34 | *** NA *** |

## TABLE A-6 ORGANIC ANALYSES OF LEACHATE FROM MSWLFs OF UNKNOWN AGE (continued)

| SAMPLE NUMBER | 57-01 | 58-01 | 59-01 | 66-01 | 70-01 | 76-01 | 76-02 | 80-01 | 80-02 |
|---|---|---|---|---|---|---|---|---|---|
| DATE STARTED | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN | UNKNOWN |
| DATA SOURCE | Trade Assoc | Trade Assoc | Trade Assoc | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt | Waste Mgmt |
| NAPHTHALENE | 37 | >> UNK << | >> UNK << | -1.6 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| NITROBENZENE | >> UNK << | >> UNK << | >> UNK << | -1.9 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 4-NITROPHENOL | >> UNK << | >> UNK << | >> UNK << | -40 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| PENTACHLOROPHENOL | >> UNK << | >> UNK << | >> UNK << | -73 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| PHENOL | >> UNK << | >> UNK << | >> UNK << | -30 | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1-PROPANOL | >> UNK << | >> UNK << | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 2-PROPANOL | >> UNK << | >> UNK << | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,1,2,2-TETRACHLOROETHANE | >> UNK << | >> UNK << | >> UNK << | -6.9 | -6.9 | *** NA *** | *** NA *** | -1 | *** NA *** |
| TETRACHLOROETHYLENE | >> UNK << | 500 | >> UNK << | -4.1 | 5.7 | *** NA *** | *** NA *** | -1 | *** NA *** |
| TETRAHYDROFURAN | >> UNK << | >> UNK << | >> UNK << | *** NA *** | -100 | *** NA *** | *** NA *** | *** NA *** | 244 |
| TOLUENE | >> UNK << | 10000 | >> UNK << | 12.2 | 114.1 | *** NA *** | *** NA *** | 730 | 9 |
| TOXAPHENE | >> UNK << | >> UNK << | >> UNK << | -10000 | -10 | -5000 | *** NA *** | *** NA *** | *** NA *** |
| 1,1,1-TRICHLOROETHANE | >> UNK << | 13000 | >> UNK << | -3.0 | 3.0 | *** NA *** | *** NA *** | -1 | *** NA *** |
| 1,1,2-TRICHLOROETHANE | >> UNK << | 630 | >> UNK << | -5 | -5 | *** NA *** | *** NA *** | -1 | *** NA *** |
| TRICHLOROETHYLENE | 1300 | >> UNK << | >> UNK << | -1.9 | 13.9 | *** NA *** | *** NA *** | -1 | *** NA *** |
| TRICHLOROFLUOROMETHANE | >> UNK << | >> UNK << | >> UNK << | -10 | -4.7 | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| 1,2,3-TRICHLOROPROPANE | >> UNK << | >> UNK << | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| VINYL CHLORIDE | >> UNK << | >> UNK << | >> UNK << | -10 | -10 | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| M-XYLENE | >> UNK << | >> UNK << | >> UNK << | *** NA *** | 9.7 | *** NA *** | *** NA *** | *** NA *** | *** NA *** |
| XYLENES | >> UNK << | >> UNK << | >> UNK << | *** NA *** | *** NA *** | *** NA *** | *** NA *** | 310 | *** NA *** |

## TABLE A-7 INORGANIC ANALYSES OF LEACHATE FROM HAZARDOUS WASTE LANDFILLS

| SAMPLE NUMBER | 01-01 | 01-02 | 01-03 | 01-04 | 01-05 | 01-06 | 02-01 | 03-01 | 03-02 | 03-03 |
|---|---|---|---|---|---|---|---|---|---|---|
| **WATER QUALITY INDICATORS** | | | | | | | | | | |
| ALKALINITY | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| AMMONIA | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BIOLOGICAL OXYGEN DEMAND | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CALCIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHEMICAL OXYGEN DEMAND | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHLORIDE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CONDUCTIVITY (umho/cm) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| eh (mv) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| FLUORIDE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| HARDNESS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| IRON | 164 | 26.2 | ** NA ** | 108 | 51 | 35.9 | ** NA ** | ** NA ** | 0.245 | 1.28 |
| NITRATE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITRITE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (KJELDAHL) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (ORGANIC) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (TOTAL) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| pH (pH units) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| PHOSPHATE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| PHOSPHORUS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| POTASSIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SULFATE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SODIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TEMPERATURE (Degrees Centigrade) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL DISSOLVED SOLIDS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL SUSPENDED SOLIDS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL ORGANIC CARBON | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL SOLIDS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| **OTHER INORGANICS** | | | | | | | | | | |
| ALUMINUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ANTIMONY | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ARSENIC | 2.96 | 120 | ** NA ** | 0.76 | 0.304 | [illegible] | 11.9 | 4.92 | ** NA ** | ** NA ** |
| BARIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 2.32 | ** NA ** | ** NA ** |
| BERYLLIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 0.477 | ** NA ** |
| BORON | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CADMIUM | 3.91 | 125.46 | 5.40 | 0.14 | 0.04 | 5.46 | ** NA ** | 0.005692 | ** NA ** | ** NA ** |
| CHROMIUM (TOTAL) | 0.87 | 0.36 | ** NA ** | -0.050 | 0.24 | -0.25 | 0.124 | 0.162 | -0.0247 | 0.011 |
| COBALT | 1.22 | 0.13 | 0.17 | 0.41 | 0.11 | 4.16 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| COPPER | 1.21 | 0.81 | 1.70 | 1.62 | 0.11 | 0.54 | 0.400 | 0.024 | 0.352 | [illegible] |
| CYANIDE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 12.1 | ** NA ** | ** NA ** |
| LEAD | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 0.0124 | 0.0142 | [illegible] |
| MANGANESE | 69.42 | 23.95 | 3.6 | 42.54 | [illegible] | 29.69 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| MAGNESIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| MERCURY | 0.040 | 0.200 | ** NA ** | 0.004 | 0.001 | -0.010 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NICKEL | 4.02 | 1.21 | 1.17 | 1.61 | 0.20 | 0.74 | 0.272 | ** NA ** | ** NA ** | ** NA ** |
| SELENIUM | -0.005 | -0.005 | -0.005 | -0.005 | ** NA ** | -0.005 | ** NA ** | [illegible] | ** NA ** | ** NA ** |
| SILVER | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| THALLIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TIN | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| VANADIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ZINC | 2.53 | 3.39 | 0.15 | 1.95 | 0.27 | 1.96 | 2.17 | ** NA ** | [illegible] | [illegible] |
| BISMUTH | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHROMIUM (HEXAVALENT) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| LITHIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| MOLYBDENUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| OSMIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SILICON | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| STRONTIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TITANIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -0.124 | [illegible] |

# TABLE A-7 INORGANIC ANALYSES OF LEACHATE FROM HAZARDOUS WASTE LANDFILLS (continued)

| SAMPLE NUMBER | 03-04 | 04-01 | 04-02 | 05-01 | 05-02 | 06-01 | 07-01 | 07-02 | 07-03 | 07-04 |
|---|---|---|---|---|---|---|---|---|---|---|
| **WATER QUALITY INDICATORS** | | | | | | | | | | |
| ALKALINITY | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 540 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| AMMONIA | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BIOLOGICAL OXYGEN DEMAND | ** NA ** | ** NA ** | ** NA ** | 30 | 22500 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CALCIUM | ** NA ** | 0.150 | 5.40 | 72 | 495 | 113 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHEMICAL OXYGEN DEMAND | ** NA ** | ** NA ** | ** NA ** | 47 | 17600 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHLORIDE | ** NA ** | ** NA ** | ** NA ** | 40 | 6420 | 746 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CONDUCTIVITY (umho/cm) | ** NA ** | ** NA ** | ** NA ** | 430 | 20000 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| Eh (mv) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| FLUORIDE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| HARDNESS | ** NA ** | ** NA ** | ** NA ** | 265 | 3930 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | NA ** |
| IRON | 1.64 | 57.0 | -0.170 | 0.3 | 142 | ** NA ** | 16.0 | 14.0 | 12.2 | 15.2 |
| NITRATE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITRITE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (KJELDAHL) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (ORGANIC) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 22.8 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (TOTAL) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 2.0 | | ** NA ** | ** NA ** | ** NA ** |
| pH (pH units) | ** NA ** | ** NA ** | ** NA ** | 7.0 | 6.6 | 5.8 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| PHOSPHATE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| PHOSPHORUS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| POTASSIUM | ** NA ** | ** NA ** | ** NA ** | 3.1 | 400 | 25 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SULFATE | ** NA ** | ** NA ** | ** NA ** | 112 | 550 | 246 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SODIUM | ** NA ** | ** NA ** | ** NA ** | 69 | 3200 | 377 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TEMPERATURE (Degrees Centigrade) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL DISSOLVED SOLIDS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 1883 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL SUSPENDED SOLIDS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL ORGANIC CARBON | ** NA ** | ** NA ** | ** NA ** | 13.6 | 12200 | 678 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL SOLIDS | ** NA ** | ** NA ** | ** NA ** | 660 | 36300 | 1210 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| **OTHER INORGANICS** | | | | | | | | | | |
| ALUMINUM | ** NA ** | 70 | -0.050 | -1 | -1 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ANTIMONY | ** NA ** | 0.064 | -0.005 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ARSENIC | ** NA ** | 0.010 | -0.005 | -0.05 | -0.05 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BARIUM | ** NA ** | 0.290 | -0.100 | -1 | -1 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BERYLLIUM | ** NA ** | -0.010 | -0.010 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BORON | ** NA ** | ** NA ** | ** NA ** | 0.26 | 16 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CADMIUM | ** NA ** | 0.040 | -0.010 | -0.05 | 0.06 | ** NA ** | 0.8 | 2.0 | 0.5 | 0.8 |
| CHROMIUM (TOTAL) | 0.011 | 0.110 | -0.010 | -0.05 | 0.06 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| COBALT | ** NA ** | 0.290 | -0.050 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| COPPER | 0.0.64 | 0.130 | -0.010 | -0.05 | 0.1 | ** NA ** | 0.60 | 0.2 | 0.2 | 0.2 |
| CYANIDE | ** NA ** | ** NA ** | ** NA ** | -0.22 | 0.023 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| LEAD | 11.73 | 0.050 | -0.003 | -0.05 | 0.45 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| MANGANESE | ** NA ** | 0.300 | -0.020 | 0.18 | 1.16 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| MAGNESIUM | ** NA ** | 0.030 | 10.70 | 21 | 411 | 93 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| MERCURY | ** NA ** | -0.0004 | -0.0002 | -0.0005 | -0.0005 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NICKEL | ** NA ** | ** NA ** | ** NA ** | -0.05 | 0.25 | ** NA ** | 0.1 | 0.1 | 0.2 | 0.1 |
| SELENIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SILVER | ** NA ** | 0.020 | -0.010 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| THALLIUM | ** NA ** | 0.069 | 0.205 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TIN | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| VANADIUM | ** NA ** | 0.150 | -0.100 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ZINC | 4.69 | 0.190 | -0.020 | -0.1 | 0.3 | ** NA ** | 0.3 | 0. | 0.2 | 0.7 |
| | | | | | | | | | | |
| BISMUTH | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHROMIUM (HEXAVALENT) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| LITHIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| MOLYBDENUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| OSMIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SILICON | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| STRONTIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TITANIUM | 0.32 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |

## TABLE A-7 INORGANIC ANALYSES OF LEACHATE FROM HAZARDOUS WASTE LANDFILLS (continued)

| SAMPLE NUMBER | 07-05 | 06-01 | 07-01 | 10-01 | 10-02 | 10-03 | 10-04 |
|---|---|---|---|---|---|---|---|
| WATER QUALITY INDICATORS | | | | | | | |
| ALKALINITY | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| AMMONIA | ** NA ** | 670 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BIOLOGICAL OXYGEN DEMAND | ** NA ** | 13400 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CALCIUM | ** NA ** | 820 | 59.9 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHEMICAL OXYGEN DEMAND | ** NA ** | 22000 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHLORIDE | ** NA ** | 3310 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CONDUCTIVITY (umho/cm) | ** NA ** | 20000 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| Eh (mV) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| FLUORIDE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| HARDNESS | ** NA ** | 4550 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| IRON | 17.4 | 350 | 0.94 | 16.9 | 491.4 | 11.5 | 13.4 |
| NITRATE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITRITE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (KJELDAHL) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (ORGANIC) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROGEN (TOTAL) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| pH (pH units) | ** NA ** | 7.0 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| PHOSPHATE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| PHOSPHORUS | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| POTASSIUM | ** NA ** | 1500 | 7.37 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SULFATE | ** NA ** | 1600 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SODIUM | ** NA ** | 2100 | 24.7 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TEMPERATURE (Degrees Centigrade) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL DISSOLVED SOLIDS | ** NA ** | 16242 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL SUSPENDED SOLIDS | ** NA ** | 1470 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL ORGANIC CARBON | ** NA ** | 6570 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOTAL SOLIDS | ** NA ** | 20026 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| OTHER INORGANICS | | | | | | | |
| ALUMINUM | ** NA ** | 2.2 | 0.47 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ANTIMONY | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ARSENIC | ** NA ** | -0.05 | | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BARIUM | ** NA ** | 1.4 | 0.2 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BERYLLIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BORON | ** NA ** | 6.5 | 2.2 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CADMIUM | 0.6 | -0.01 | 0.02 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHROMIUM (TOTAL) | ** NA ** | 0.07 | 0.033 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| COBALT | ** NA ** | ** NA ** | 0.054 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| COPPER | 0.2 | 0.11 | 0.104 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CYANIDE | ** NA ** | 0.023 | 0.027 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| LEAD | ** NA ** | 0.50 | 0.92 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| MANGANESE | ** NA ** | 10.0 | 0.59 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| MAGNESIUM | ** NA ** | 510 | 25.4 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| MERCURY | ** NA ** | -0.02 | 0.006 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NICKEL | 0.2 | 1.4 | 0.064 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SELENIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SILVER | ** NA ** | ** NA ** | 0.02 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| THALLIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TIN | ** NA ** | ** NA ** | 0.52 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| VANADIUM | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ZINC | 1.4 | 12 | 0.279 | 0.07 | 0.71 | 0.05 | 0.06 |
| | | | | | | | |
| [illegible] | ** NA ** | ** NA ** | 0.43 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHROMIUM (HEXAVALENT) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| LITHIUM | ** NA ** | ** NA ** | 0.02 | 0.27 | 0.59 | 0.20 | 0.2 |
| MOLYBDENUM | ** NA ** | ** NA ** | 0.05 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| [illegible] | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| SILICON | ** NA ** | ** NA ** | 3.91 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| STRONTIUM | ** NA ** | ** NA ** | 0.27 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TITANIUM | ** NA ** | ** NA ** | 0.2 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |

# TABLE A-8 ORGANIC ANALYSES OF LEACHATE FROM HAZARDOUS WASTE LANDFILLS

| SAMPLE NUMBER | 01CCAP1 | 01CCAP2 | 02-01 | 02-02 | 03-04 | 04-01 | 04-02 | 05-01 | 05-02 | 06-01 |
|---|---|---|---|---|---|---|---|---|---|---|
| ACETONE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | [illegible] |
| ACROLEIN | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BENZENE | 1060 | 2160 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -10 | 40 | ** NA ** |
| BROMOMETHANE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BUTANOL | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| 1-BUTANOL | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| 2-BUTANONE (MEK) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BUTYL BENZYL PHENOL | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CARBON TETRACHLORIDE | 39 | 52 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -10 | 1500 | ** NA ** |
| CHLOROBENZENE | 312 | 672 | 477 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -10 | 170 | ** NA ** |
| CHLOROETHANE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -10 | 120 | ** NA ** |
| BIS(2-CHLOROETHOXY)METHANE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| 2-CHLOROETHYL VINYL ETHER | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHLOROFORM | 1910 | 2320 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -10 | 1200 | ** NA ** |
| CHLOROMETHANE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -10 | 340 | ** NA ** |
| BIS(CHLOROMETHYL)ETHER | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| 2-CHLORONAPHTHALENE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| P-CRESOL | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| 2,4-D | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| 4,4-DDT | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| DIBROMOMETHANE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| DI-N-BUTYL PHTHALATE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -10 | ** NA ** |
| 1,2-DICHLOROBENZENE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| 1,4-DICHLOROBENZENE | ** NA ** | ** NA ** | 311 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| DICHLORODIFLUOROMETHANE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| 1,1-DICHLOROETHANE | 698 | 594 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 32 | 35000 | ** NA ** |
| 1,2-DICHLOROETHANE | 2120 | 10000 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 31 | 5000 | ** NA ** |
| CIS-1,2-DICHLOROETHYLENE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TRANS-1,2-DICHLOROETHYLENE | 4650 | 797 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 45 | 3900 | ** NA ** |
| 1,2-DICHLOROPROPANE | 35 | 102 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -10 | 170 | ** NA ** |
| 1,3-DICHLOROPROPENE | 50 | 23 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| DIETHYL PHTHALATE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -50 | ** NA ** |
| 2,4 DIMETHYLPHENOL | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 53 | -250 | ** NA ** |
| DIMETHYL PHTHALATE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ENDRIN | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ETHANOL | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ETHYL ACETATE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ETHYL BENZENE | 400 | 1650 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -10 | 470 | ** NA ** |
| BIS(2-ETHYLHEXYL)PHTHALATE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 500 | ** NA ** | -10 | 11 | ** NA ** |
| 2-HEXANONE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ISOPHORONE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 22 | [illegible] | ** NA ** |
| LINDANE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| 4-METHYL-2-PENTANONE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| METHYLENE CHLORIDE | 11000 | 45700 | ** NA ** | ** NA ** | ** NA ** | [illegible] | 2630 | -12 | 2560 | ** NA ** |

## TABLE A-8 ORGANIC ANALYSES OF LEACHATE FROM HAZARDOUS WASTE LANDFILLS (continued)

| SAMPLE NUMBER | 01COMP1 | 01COMP2 | 02-02 | 22-02 | 02-04 | 24-01 | 24-02 | 05-0[illegible] | 25-0[illegible] | 35-0[illegible] |
|---|---|---|---|---|---|---|---|---|---|---|
| NAPHTHALENE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -10 | [illegible] | ** NA ** |
| NITROBENZENE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| 4-NITROPHENOL | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| PENTACHLOROPHENOL | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| PHENOL | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 420 | 252 | -25 | 3120 | ** NA ** |
| 1-PROPANOL | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| 2-PROPANOL | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| 1,1,2,2-TETRACHLOROETHANE | 753 | 7240 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -10 | 300 | ** NA ** |
| TETRACHLOROETHYLENE | 602 | 869 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -10 | -63 | ** NA ** |
| TETRAHYDROFURAN | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOLUENE | 1730 | 5780 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 1[illegible] | 12220 | ** NA ** |
| TOXAPHENE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 10 | ** NA ** | -10 | ** NA ** | ** NA ** |
| 1,1,1-TRICHLOROETHANE | 240 | 577 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 173 | 6500 | ** NA ** |
| 1,1,2-TRICHLOROETHANE | 50 | 103 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -10 | 250 | ** NA ** |
| TRICHLOROETHYLENE | 1690 | 1170 | 56 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | 14 | 452 | ** NA ** |
| TRICHLOROFLUOROMETHANE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| 1,2,3-TRICHLOROPROPANE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| VINYL CHLORIDE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -10 | [illegible] | ** NA ** |
| M-XYLENE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| XYLENES | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |

## TABLE A-8 ORGANIC ANALYSES OF LEACHATE FROM HAZARDOUS WASTE LANDFILLS (continued)

| SAMPLE NUMBER | 22-01 | 09-01 | 10-21 | 10-22 | 10-23 | 10-24 | 11-21 | 11-22 | [illegible] | [illegible] |
|---|---|---|---|---|---|---|---|---|---|---|
| ACETONE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ACROLEIN | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BENZENE | 320 | 0.36 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BROMOMETHANE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BUTANOL | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| 2-BUTANOL | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| 2 BUTANONE (MEK) | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BUTYL BENZYL PHTHALATE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CARBON TETRACHLORIDE | -10 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHLOROBENZENE | 130 | ** NA ** | 2 | 70 | 2 | 0 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHLOROETHANE | -10 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BIS(2-CHLOROETHOXY)METHANE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| 2-CHLOROETHYL VINYL ETHER | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHLOROFORM | -10 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CHLOROMETHANE | -10 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BIS(CHLOROMETHYL)ETHER | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| 2-CHLORONAPHTHALENE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| P-CRESOL | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| 2,4-D | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| 4,4-DDT | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -0.001 | -0.001 | -0.001 | 0.02 |
| DIBROMOETHANE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| DI-N-BUTYL PHTHALATE | -10 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| 1,2-DICHLOROBENZENE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| 1,4-DICHLOROBENZENE | ** NA ** | ** NA ** | 30 | 670 | 2 | 10 | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| DICHLORODIFLUOROMETHANE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| 1,1-DICHLOROETHANE | -10 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| 1,2-DICHLOROETHANE | -10 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| CIS-1,2-DICHLOROETHYLENE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TRANS-1,2-DICHLOROETHYLENE | -10 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| 1,2-DICHLOROPROPANE | -10 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| 1,3-DICHLOROPROPENE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| DIETHYL PHTHALATE | 23 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| 2,4-DIMETHYLPHENOL | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| DIMETHYL PHTHALATE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ENDRIN | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -0.001 | 0.001 | -0.001 | 0.001 |
| ETHANOL | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ETHYL ACETATE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ETHYL BENZENE | -10 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| BIS(2-ETHYLHEXYL)PHTHALATE | -10 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| 2-HEXANONE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| ISOPHORONE | -25 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| LINDANE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -0.001 | -0.001 | 0.002 | 0.00 |
| 4-METHYL-2-PENTANONE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| METHYLENE CHLORIDE | 120 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |

## TABLE A-8 ORGANIC ANALYSES OF LEACHATE FROM HAZARDOUS WASTE LANDFILLS (continued)

| SAMPLE NUMBER | 08-01 | 09-01 | 10-01 | 10-02 | 10-03 | 10-04 | 11-01 | 11-02 | 11-03 | 11-04 |
|---|---|---|---|---|---|---|---|---|---|---|
| NAPHTHALENE | 37 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| NITROBENZENE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| 4-NITROPHENOL | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| PENTACHLOROPHENOL | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| PHENOL | 1000 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | -0.001 | -0.001 | 0.001 | 0.001 |
| 1-PROPANOL | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| 2-PROPANOL | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| 1,1,2,2-TETRACHLOROETHANE | -10 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TETRACHLOROETHYLENE | -10 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TETRAHYDROFURAN | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOLUENE | 29 | 0.027 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TOXAPHENE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| 1,1,1-TRICHLOROETHANE | -10 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| 1,1,2-TRICHLOROETHANE | -10 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TRICHLOROETHYLENE | -10 | 4.59 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| TRICHLOROFLUOROMETHANE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| 1,2,3-TRICHLOROPROPANE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| VINYL CHLORIDE | -10 | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| M-XYLENE | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |
| XYLENES | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** | ** NA ** |

## TABLE A-8 ORGANIC ANALYSES OF LEACHATE FROM HAZARDOUS WASTE LANDFILLS (continued)

| SAMPLE NUMBER | 11-25 | 11-26 | [illegible] |
|---|---|---|---|
| ACETONE | ** NA ** | ** NA ** | ** NA ** |
| ACROLEIN | ** NA ** | ** NA ** | ** NA ** |
| BENZENE | ** NA ** | ** NA ** | ** NA ** |
| BROMOMETHANE | ** NA ** | ** NA ** | ** NA ** |
| BUTANOL | ** NA ** | ** NA ** | ** NA ** |
| 1-BUTANOL | ** NA ** | ** NA ** | ** NA ** |
| 2-BUTANONE (MEK) | ** NA ** | ** NA ** | ** NA ** |
| BUTYL BENZYL PHENOL | ** NA ** | ** NA ** | ** NA ** |
| CARBON TETRACHLORIDE | ** NA ** | ** NA ** | ** NA ** |
| CHLOROBENZENE | ** NA ** | ** NA ** | ** NA ** |
| CHLOROETHANE | ** NA ** | ** NA ** | ** NA ** |
| BIS(2-CHLOROETHOXY)METHANE | ** NA ** | ** NA ** | ** NA ** |
| 2-CHLOROETHYL VINYL ETHER | ** NA ** | ** NA ** | ** NA ** |
| CHLOROFORM | ** NA ** | ** NA ** | ** NA ** |
| CHLOROMETHANE | ** NA ** | ** NA ** | ** NA ** |
| BIS(CHLOROMETHYL)ETHER | ** NA ** | ** NA ** | ** NA ** |
| 2-CHLORONAPHTHALENE | ** NA ** | ** NA ** | ** NA ** |
| P-CRESOL | ** NA ** | ** NA ** | ** NA ** |
| 2,4-D | ** NA ** | ** NA ** | ** NA ** |
| 4,4-DDT | -0.001 | -0.001 | -0.001 |
| DIBROMOMETHANE | ** NA ** | ** NA ** | ** NA ** |
| DI-N-BUTYL PHTHALATE | ** NA ** | ** NA ** | ** NA ** |
| 1,2-DICHLOROBENZENE | ** NA ** | ** NA ** | ** NA ** |
| 1,4-DICHLOROBENZENE | ** NA ** | ** NA ** | ** NA ** |
| DICHLORODIFLUOROMETHANE | ** NA ** | ** NA ** | ** NA ** |
| 1,1-DICHLOROETHANE | ** NA ** | ** NA ** | ** NA ** |
| 1,2-DICHLOROETHANE | ** NA ** | ** NA ** | ** NA ** |
| CIS-1,2-DICHLOROETHYLENE | ** NA ** | ** NA ** | ** NA ** |
| TRANS-1,2-DICHLOROETHYLENE | ** NA ** | ** NA ** | ** NA ** |
| 1,2-DICHLOROPROPANE | ** NA ** | ** NA ** | ** NA ** |
| 1,3-DICHLOROPROPENE | ** NA ** | ** NA ** | ** NA ** |
| DIETHYL PHTHALATE | ** NA ** | ** NA ** | ** NA ** |
| 2,4-DIMETHYLPHENOL | ** NA ** | ** NA ** | ** NA ** |
| DIMETHYL PHTHALATE | ** NA ** | ** NA ** | ** NA ** |
| ENDRIN | -0.001 | -0.001 | -0.001 |
| ETHANOL | ** NA ** | ** NA ** | ** NA ** |
| ETHYL ACETATE | ** NA ** | ** NA ** | ** NA ** |
| ETHYL BENZENE | ** NA ** | ** NA ** | ** NA ** |
| BIS(2-ETHYLHEXYL) PHTHALATE | ** NA ** | ** NA ** | ** NA ** |
| 2-HEXANONE | ** NA ** | ** NA ** | ** NA ** |
| ISOPHORONE | ** NA ** | ** NA ** | ** NA ** |
| LINDANE | -0.001 | -0.001 | -0.001 |
| 4-METHYL 2-PENTANONE | ** NA ** | ** NA ** | ** NA ** |
| METHYLENE CHLORIDE | ** NA ** | ** NA ** | ** NA ** |

## TABLE A-8 ORGANIC ANALYSES OF LEACHATE FROM HAZARDOUS WASTE LANDFILLS (continued)

| SAMPLE NUMBER | 11-85 | 11-86 | 11-87 |
|---|---|---|---|
| NAPHTHALENE | ** NA ** | ** NA ** | ** NA ** |
| NITROBENZENE | ** NA ** | ** NA ** | ** NA ** |
| 4-NITROPHENOL | ** NA ** | ** NA ** | ** NA ** |
| PENTACHLOROPHENOL | ** NA ** | ** NA ** | ** NA ** |
| PHENOL | -0.001 | 0.002 | 1.09 |
| 1-PROPANOL | ** NA ** | ** NA ** | ** NA ** |
| 2-PROPANOL | ** NA ** | ** NA ** | ** NA ** |
| 1,1,2,2-TETRACHLOROETHANE | ** NA ** | ** NA ** | ** NA ** |
| TETRACHLOROETHYLENE | ** NA ** | ** NA ** | ** NA ** |
| TETRAHYDROFURAN | ** NA ** | ** NA ** | ** NA ** |
| TOLUENE | ** NA ** | ** NA ** | ** NA ** |
| TOXAPHENE | ** NA ** | ** NA ** | ** NA ** |
| 1,1,1-TRICHLOROETHANE | ** NA ** | ** NA ** | ** NA ** |
| 1,1,2-TRICHLOROETHANE | ** NA ** | ** NA ** | ** NA ** |
| TRICHLOROETHYLENE | ** NA ** | ** NA ** | ** NA ** |
| TRICHLOROFLUOROMETHANE | ** NA ** | ** NA ** | ** NA ** |
| 1,2,3-TRICHLOROPROPANE | ** NA ** | ** NA ** | ** NA ** |
| VINYL CHLORIDE | ** NA ** | ** NA ** | ** NA ** |
| M-XYLENE | ** NA ** | ** NA ** | ** NA ** |
| XYLENES | ** NA ** | ** NA ** | ** NA ** |

# APPENDIX B

## BASIC STATISTICAL VALUES

NOTES

1. Inorganic constituents, both water quality indicators and other inorganics, are in parts per million unless otherwise stated; organic constituents are in parts per billion.

2. "Pre-1980 MSWLF" refers to municipal solid waste landfills constructed prior to or during 1980; "post-1980 MSWLF" refers to landfills constructed after 1980. Unless distinguished by "pre-1980", "post-1980" or "undated", MSWLF refers to pre-1980, post-1980, and undated municipal solid waste landfills.

## TABLES IN APPENDIX B

Table

B-1 Organic Constituents Detected Twice or Less in MSWLF Leachate

B-2 Statistical Summary of Indicator Parameters in MSWLF Leachate

B-3 Statistical Summary of Other Inorganics in MSWLF Leachate

B-4 Statistical Summary of Organics in MSWLF Leachate

B-5 Data Summary of Indicator Parameters for Pre-1980 and Post-1980 MSWLFs

B-6 Data Summary of Other Inorganics for Pre-1980 and Post-1980 MSWLFs

B-7 Data Summary of Organics for Pre-1980 and Post-1980 MSWLFs

B-8 Data Summary of Hazardous Waste Landfills and Post-1980 MSWLFs

## TABLE B-1

## ORGANIC CONSTITUENTS* DETECTED TWICE OR LESS IN MSWLF LEACHATE

| | Number of Times Analyzed For | Number of Times Detected | Percent Detections |
|---|---|---|---|
| Acetonitrile | 2 | 2 | 100 |
| Acenaphthene | 60 | 0 | 0 |
| Acenaphthylene | 59 | 0 | 0 |
| Acetophenone | 19 | 0 | 0 |
| 2-Acetylanimofluorene | 19 | 0 | 0 |
| 4-Aminobiphenyl | 19 | 0 | 0 |
| Acrylonitrile | 69 | 0 | 0 |
| Acrylamide | 2 | 0 | 0 |
| Allyl chloride | 21 | 0 | 0 |
| Aniline | 22 | 0 | 0 |
| Aldrin | 60 | 0 | 0 |
| Anthracene | 60 | 0 | 0 |
| Aramite | 19 | 0 | 0 |
| Benzidene | 60 | 0 | 0 |
| Benzo (a) anthracene | 62 | 0 | 0 |
| Benzo (a) pyrene | 62 | 0 | 0 |
| Benzo (g,h,i) perylene | 60 | 0 | 0 |
| Benzo (b) fluoranthene | 42 | 0 | 0 |
| Benzo (k) fluoranthene | 60 | 0 | 0 |
| 1,4-Benzoquinone | 19 | 0 | 0 |
| BHC-Alpha | 62 | 0 | 0 |
| BHC-Beta | 62 | 0 | 0 |
| BHC-Gamma | 62 | 0 | 0 |
| Benzoic acid | 20 | 0 | 0 |
| Benzotrichloride | 2 | 0 | 0 |
| Benzyl alcohol | 20 | 0 | 0 |
| Benzyl chloride | 2 | 0 | 0 |
| 3,4-Benzofluoranthene | 20 | 0 | 0 |
| Berzenethiol | 19 | 0 | 0 |
| Iso-butanol | 1 | 0 | 0 |
| Bis (2-chloroethyl) ether | 39 | 0 | 0 |
| n-Butanol | 1 | 0 | 0 |
| Bis (2-chlorosiopropyl) ether | 60 | 0 | 0 |
| 4-Bromophenyl phenyl ether | 60 | 0 | 0 |
| Butanol | 1 | 0 | 0 |
| 1-Butanol | 1 | 0 | 0 |
| Butyl benzyl phthalate | 60 | 1 | 2 |

* In rough alphabetical order only; 201 constituents listed; 179 of these were not detected; 18 were detectd once; 4 were detected twice.

## TABLE B-1

## ORGANIC CONSTITUENTS DETECTED TWICE OR LESS IN MSWLF LEACHATE (continued)

| | Number of Times Analyzed For | Number of Times Detected | Percent Detections |
|---|---|---|---|
| Carbazole | 19 | 0 | 0 |
| Carbon Disulfide | 5 | 0 | 0 |
| Chlordane | 62 | 0 | 0 |
| 1-Chloro-2,3-epoxypropane | 2 | 0 | 0 |
| Chloroacetaldehyde | 1 | 0 | 0 |
| 4-Chloroaniline | 20 | 0 | 0 |
| 4-Chlorophenyl phenyl ether | 60 | 0 | 0 |
| 3-Chloropropionitrile | 19 | 0 | 0 |
| Cyclohexane | 1 | 1 | 100 |
| 2-Chloro-ethanol phosphate | 1 | 1 | 100 |
| 2-Chlorophenol | 63 | 0 | 0 |
| Chlorobenzilate | 19 | 0 | 0 |
| Chrysene | 62 | 0 | 0 |
| o-Cresol | 2 | 1 | 50 |
| Dibenzo (a,h) anthracene | 61 | 0 | 0 |
| Dibenzo (a,e) pyrene | 19 | 0 | 0 |
| Dibenzo (a,i) pyrene | 19 | 0 | 0 |
| Dibenzofuran | 20 | 0 | 0 |
| 1,3-Dichlorobenzene | 66 | 1 | 2 |
| 2,6-Dichlorophenol | 21 | 0 | 0 |
| 2,3-Dichloropropanol | 1 | 0 | 0 |
| 2,3-Dichloropropylene | 3 | 0 | 0 |
| 3,3-Dichlorobenzidine | 60 | 0 | 0 |
| 2,4-Dichlorophenol | 63 | 0 | 0 |
| 1,1-Dichloroethylene | 74 | 0 | 0 |
| 4,4-DDD | 60 | 0 | 0 |
| 4,4-DDE | 60 | 0 | 0 |
| Dieldrin | 60 | 0 | 0 |
| Dimethyl sulfoxide | 1 | 0 | 0 |
| 7,12-Dimethylbenz (a) anthracene | 19 | 0 | 0 |
| p-Dimethylaminoazobenzene | 19 | 0 | 0 |
| 3,3-Dimethylbenzidine | 19 | 0 | 0 |
| a,a-Dimethylphenethylamine | 19 | 0 | 0 |
| 1,2-Diphenyl hydrazine | 60 | 0 | 0 |
| 1,3-Dinitrobenzene | 19 | 0 | 0 |
| 2,4-Dinitrophenol | 63 | 0 | 0 |
| 4,6-Dinitro-o-cresol | 63 | 0 | 0 |
| 2,4-Dinitrotoluene | 62 | 0 | 0 |

## TABLE B-1

## ORGANIC CONSTITUENTS DETECTED TWICE OR LESS IN MSWLF LEACHATE (continued)

| | Number of Times Analyzed For | Number of Times Detected | Percent Detections |
|---|---|---|---|
| 2,6-Dinitrololuene | 60 | 0 | 0 |
| Di-n-octyl phthalate | 60 | 1 | 2 |
| Di-n-octyl phthalate | 60 | 1 | 2 |
| Dinoseb | 19 | 0 | 0 |
| m-Dinitrobenzene | 2 | 0 | 0 |
| Diphenylamine | 21 | 0 | 0 |
| Diphenylamine | 2 | 0 | 0 |
| 1,4-Dioxane | 1 | 0 | 0 |
| 1,2-Dibromoethane | 19 | 0 | 0 |
| 1,2-Dibromo-3-chloropropane | 19 | 0 | 0 |
| 3,3-Dimethoxybenzidine | 19 | 0 | 0 |
| Disulfonton | 19 | 0 | 0 |
| Endosulfan-alpha | 60 | 0 | 0 |
| Endosulfan-beta | 60 | 0 | 0 |
| Endrin aldehyde | 60 | 0 | 0 |
| Endrin ketone | 1 | 0 | 0 |
| Ethanol | 1 | 0 | 0 |
| Ethyl ether | 1 | 1 | 100 |
| Ethyl methacrylate | 19 | 0 | 0 |
| Fluorene | 60 | 0 | 0 |
| Famphur | 19 | 0 | 0 |
| Formic acid | 2 | 0 | 0 |
| Freon TF | 2 | 0 | 0 |
| Heptachlor | 62 | 0 | 0 |
| Heptachlorepoxide | 60 | 0 | 0 |
| Hexachlorobenzene | 62 | 0 | 0 |
| Hexachlorobutadiene | 62 | 0 | 0 |
| Hexachlorocyclopentadiene | 62 | 0 | 0 |
| Hexachloroethane | 62 | 0 | 0 |
| Hexachloropropene | 19 | 0 | 0 |
| Hexachlorophene | 19 | 0 | 0 |
| Indeno (1,2,3-c,d) pyrene | 62 | 0 | 0 |
| Iodomethane | 19 | 0 | 0 |
| Isobutyl alcohol | 1 | 0 | 0 |
| Isodrin | 19 | 0 | 0 |
| Kepone | 19 | 0 | 0 |
| Maleic anhydride | 2 | 0 | 0 |

## TABLE B-1

## ORGANIC CONSTITUENTS DETECTED TWICE OR LESS IN MSWLF LEACHATE (continued)

| | Number of Times Analyzed For | Number of Times Detected | Percent Detection |
|---|---|---|---|
| Malononitrile (propanedinitrile) | 19 | 0 | 0 |
| Methapyrilene | 19 | 0 | 0 |
| Methanol | 2 | 0 | 0 |
| Methoxychlor | 31 | 0 | 0 |
| Methyl methane sulfonate | 19 | 0 | 0 |
| Methylnaphthalene | 1 | 0 | 0 |
| 3-Methylcholanthrene | 19 | 0 | 0 |
| 2-Methylphenol | 20 | 0 | 0 |
| 4-Methyl-1-(1-methylethyl) cyclohexanol | 1 | 1 | 100 |
| 1-(2-Methoxy-1-methylethoxy) 2-propanol | 1 | 1 | 100 |
| 2-(2-Methoxypropoxy) 1-propanol | 1 | 1 | 100 |
| n-(1-Methylethyl)-n-nitroso 2-propanamine | 1 | 1 | 100 |
| Methacrylonitrile | 19 | 0 | 0 |
| 3-Methylphenol (m-cresol) | 21 | 1 | 5 |
| 4,4-Methylene bis (2-chloroaniline) | 19 | 0 | 0 |
| 2-Methylnaphthalene | 19 | 0 | 0 |
| N-nitrosodimethylamine | 60 | 0 | 0 |
| N-nitrosodiphenylamine | 60 | 1 | 2 |
| N-nitrosodi-n-propylamine | 37 | 0 | 0 |
| 1,4-Naphtoquinone | 21 | 0 | 0 |
| 2-Nitroaniline | 20 | 0 | 0 |
| 3-Nitroaniline | 20 | 0 | 0 |
| 4-Nitroaniline | 20 | 0 | 0 |
| 2-Nitrophenol | 61 | 0 | 0 |
| 1-Naphthylamine | 19 | 0 | 0 |
| 2-Naphthylamine | 19 | 0 | 0 |
| 5-Nitro-2-amino toluene | 19 | 0 | 0 |
| n-Nitroso-di-n-butylamine | 19 | 0 | 0 |
| n-Nitrosodiethylamine | 19 | 0 | 0 |
| n-Nitrosomethylethylamine | 19 | 0 | 0 |
| n-Nitrosomorpholine | 19 | 0 | 0 |
| n-Nitrosopiperidine | 19 | 0 | 0 |
| n-Nitrosopyrrolidine | 19 | 0 | 0 |
| p-Chloro-m-cresol | 62 | 2 | 3 |
| PCB-1248 | 60 | 0 | 0 |
| PCB-1254 | 60 | 0 | 0 |
| PCB-1260 | 60 | 0 | 0 |

## TABLE B-1

## ORGANIC CONSTITUENTS DETECTED TWICE OR LESS IN MSWLF LEACHATE (continued)

| | Number of Times Analyzed For | Number of Times Detected | Percent Detections |
|---|---|---|---|
| PCB-1016 | 60 | 0 | 0 |
| PCB-1221 | 60 | 0 | 0 |
| PCB-1232 | 60 | 0 | 0 |
| PCB-1242 | 60 | 0 | 0 |
| Parathion, ethyl | 19 | 0 | 0 |
| Parathion, methyl | 19 | 0 | 0 |
| Paraldehyde | 2 | 0 | 0 |
| Pentachloronitrobenzene | 19 | 0 | 0 |
| Pentachlorobenzene | 21 | 0 | 0 |
| Pentachloroethane | 21 | 0 | 0 |
| Phenacetin | 19 | 0 | 0 |
| Phenanthrene | 56 | 0 | 0 |
| Phenylenediamine | 19 | 0 | 0 |
| m-Phenylenediamine | 2 | 0 | 0 |
| o-Phenylenediamine | 2 | 0 | 0 |
| p-Phenylenediamine | 2 | 0 | 0 |
| Phorate | 21 | 0 | 0 |
| Phthalic anhydride | 2 | 0 | 0 |
| 2-Picoline | 21 | 0 | 0 |
| Pronamide | 19 | 0 | 0 |
| Pyrene | 60 | 0 | 0 |
| Pyridine | 2 | 0 | 0 |
| Styrene | 23 | 1 | 0 |
| 2,4,5-T | 21 | 0 | 0 |
| 1,2,3,4-Tetrachlorobenzene | 2 | 0 | 0 |
| 1,2,3,5-Tetrachlorobenzene | 2 | 0 | 0 |
| 1,2,4,5-Tetrachlorobenzene | 21 | 0 | 0 |
| 1,1,1,2-Tetrachloroethane | 7 | 0 | 0 |
| 2,3,4,5-Tetrachlorophenol | 2 | 0 | 0 |
| 2,3,5,6-Tetrachlorophenol | 2 | 0 | 0 |
| Toluene-2,4-diamine | 2 | 0 | 0 |
| Trans-1,3-dichloropropylene | 46 | 0 | 0 |
| 1,2,3-Trichlorobenzene | 4 | 1 | 25 |
| 1,2,4-Trichlorobenzene | 18 | 0 | 0 |
| 1,3,5-Trichlorobenzene | 2 | 0 | 0 |
| 2,4,5-Trichlorophenol | 20 | 0 | 0 |
| 1,1,2-Trichloropropane | 3 | 0 | 0 |
| 1,2,2-Trichloropropane | 2 | 0 | 0 |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 19 | 0 | 0 |

## TABLE B-1

## ORGANIC CONSTITUENTS DETECTED TWICE OR LESS IN MSWLF LEACHATE (continued)

| | Number of Times Analyzed For | Number of Times Detected | Percent Detections |
|---|---|---|---|
| Resorcinol | 19 | 0 | 0 |
| Safrole | 19 | 0 | 0 |
| Silvex (2,4,5-tp) | 14 | 2 | 14 |
| Sulfotepp | 19 | 0 | 0 |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 23 | 0 | 0 |
| 2,4,6-Trichlorophenol | 39 | 0 | 0 |
| Trichloromethanethiol | 19 | 0 | 0 |
| Tris (2,3-dibromopropyl) phosphate | 19 | 0 | 0 |
| Trimethyl cyclohexanol | 1 | 1 | 100 |
| Trimethyl-bicyclo-heptan-2-one | 2 | 2 | 100 |
| 3,3,5-Trimethyl cyclohexanone | 1 | 1 | 100 |
| Vinyl acetate | 3 | 0 | 0 |
| Zinophos | 19 | 0 | 0 |

## TABLE B-2

## STATISTICAL SUMMARY OF INDICATOR PARAMETERS IN MSWLF LEACHATE

| Indicator | Minimum | Maximum | Median | Average | Standard Deviation | Number of Values |
|---|---|---|---|---|---|---|
| Alkalinity | 470 | 57,850 | 2,650 | 4,214 | 2,992 | 43 |
| Ammonia | 0.39 | 1,200 | 209 | 281 | 203 | 77 |
| Biological Oxygen Demand | 7 | 29,200 | 2,310 | 3,837 | 3,379 | 75 |
| Calcium | 95.5 | 2,100 | 320 | 492 | 332 | 33 |
| Chemical Oxygen Demand | 42 | 50,450 | 2,800 | 4,773 | 4,145 | 121 |
| Chloride | 31 | 5,475 | 594 | 786 | 503 | 118 |
| Conductivity (umho/cm) | 300 | 36,000 | 5,600 | 6,764 | 3,509 | 129 |
| eH (mV) | 383 | 804 | 481 | 516 | 99 | 19 |
| Fluoride | 0.11 | 302 | 0.39 | 13.1 | 24.1 | 24 |
| Hardness | 0.8 | 9,380 | 1,665 | 2,100 | 1,186 | 40 |
| Iron | 0.22 | 2,280 | 95.15 | 221 | 215 | 120 |
| Nitrate | 0.01 | 50.93 | 0.22 | 1.88 | 2.77 | 38 |
| Nitrite | 0.005 | 0.2 | 0.03 | 0.0527 | 0.0459 | 9 |
| Nitrogen (Kjeldahl) | 34.41 | 1,470 | 270 | 324 | 211 | 37 |
| Nitrogen (Organic) | 4.5 | 100 | 50 | 51.1 | 20.8 | 22 |
| Nitrogen (Total) | 504.5 | 504.5 | 504.5 | 504.5 | 504.5 | 1 |
| pH (pH units) | 5.4 | 12.5 | 6.69 | 6.79 | 0.56 | 144 |
| Phosphate | 0.42 | 8.7 | 1.2 | 2.67 | 2.41 | 5 |
| Phosphorus | 0.29 | 117.18 | 1.4 | 7.82 | 10.42 | 21 |
| Potassium | 17.8 | 1,175 | 381.5 | 409 | 257 | 34 |
| Sulfate | 8 | 1,400 | 111 | 244 | 231 | 86 |
| Sodium | 12 | 2,574 | 692.9 | 821 | 445 | 65 |
| Temperature (Degrees Centigrade) | 5 | 25 | 11.3 | 14.8 | 6.22 | 19 |
| Total Dissolved Solids | 390 | 31,800 | 4,890 | 5,691 | 2,744 | 74 |
| Total Suspended Solids | 23 | 17,800 | 276 | 813 | 918 | 98 |
| Total Organic Carbon | 20 | 14,500 | 1,000 | 2,048 | 1,909 | 73 |
| Total Solids | 1,900 | 33,050 | 10,658 | 14,260 | 8,231 | 8 |

## TABLE B-3

## STATISTICAL SUMMARY OF OTHER INORGANICS IN MSWLF LEACHATE

| Inorganic Toxicant | Minimum | Maximum | Median | Average | Standard Deviation | Number of Values |
|---|---|---|---|---|---|---|
| Aluminum | 0.01 | 5.8 | 2.4 | 2.75 | 1.69 | 13 |
| Antimony | 0.0015 | 47 | 0.066 | 4.52 | 7.72 | 11 |
| Arsenic | 0.0002 | 0.982 | 0.0135 | 0.0418 | 0.0476 | 72 |
| Barium | 0.08 | 5 | 0.525 | 0.8526 | 0.5667 | 60 |
| Beryllium | 0.001 | 0.01 | 0.00475 | 0.0056 | 0.0026 | 6 |
| Boron | 0.63 | 12.3 | 3.987 | 4.41 | 2.82 | 8 |
| Cadmium | 0.0007 | 0.15 | 0.0135 | 0.022 | 0.0169 | 46 |
| Chromium (Total) | 0.0005 | 1.9 | 0.06 | 0.1754 | 0.2017 | 97 |
| Cobalt | 0.04 | 0.13 | 0.08 | 0.0900 | 0.0320 | 5 |
| Copper | 0.003 | 2.8 | 0.054 | 0.1679 | 0.1821 | 68 |
| Cyanide | 0.004 | 0.3 | 0.02 | 0.0634 | 0.0644 | 21 |
| Lead | 0.005 | 1.6 | 0.063 | 0.1616 | 0.1629 | 73 |
| Manganese | 0.03 | 79 | 3.7 | 9.59 | 9.75 | 103 |
| Magnesium | 74 | 927 | 135.5 | 227 | 140 | 34 |
| Mercury | 0.0001 | 0.0098 | 0.0006 | 0.0020 | 0.0020 | 19 |
| Nickel | 0.02 | 2.227 | 0.170 | 0.3255 | 0.2770 | 98 |
| Selenium | 0.001 | 0.09 | 0.006 | 0.0119 | 0.0105 | 18 |
| Silver | 0.0008 | 0.05 | 0.02 | 0.0208 | 0.0104 | 19 |
| Thallium | 0.004 | 0.86 | 0.08 | 0.1753 | 0.1899 | 11 |
| Tin | 0.16 | 2 | 0.23 | 0.7967 | 0.8022 | 3 |
| Vanadium | 0.009 | 0.029 | 0.0175 | 0.0179 | 0.0045 | 18 |
| Zinc | 0.03 | 350 | 0.675 | 8.32 | 12.18 | 114 |

## TABLE B-4

## STATISTICAL SUMMARY OF ORGANICS IN MSWLF LEACHATE

| Organic Toxicant | Minimum | Maximum | Median | Average | Standard Deviation | Number of Values |
|---|---|---|---|---|---|---|
| Acetone | 8 | 11,000 | 430 | 2,163 | 2,260 | 23 |
| Acrolein | 270 | 270 | 270 | 270 | 0 | 1 |
| Benzene | 4 | 1,080 | 37 | 221 | 255 | 35 |
| Bromomethane | 170 | 170 | 170 | 170 | 0 | 1 |
| Butanol | 10,000 | 10,000 | 10,000 | 10,000 | 0 | 1 |
| 1-Butanol | 320 | 360 | 340 | 340 | 20 | 2 |
| 2-Butanone (Methyl Ethyl Ketone) | 110 | 27,000 | 1,550 | 4,151 | 4,441 | 24 |
| Butyl Benzyl Phenol | 21 | 150 | 125 | 98.7 | 51.8 | 3 |
| Carbon Tetrachloride | 6 | 397.5 | 202 | 202 | 196 | 2 |
| Chlorobenzene | 1 | 685 | 7 | 128 | 176 | 12 |
| Chloroethane | 11.1 | 860 | 27.9 | 151 | 177 | 11 |
| Bis (2-Chloroethyoxy) Methane | 18 | 25 | 21.5 | 21.5 | 3.5 | 2 |
| 2-Chloroethyl Vinyl Ether | 2 | 1,100 | 551 | 551 | 549 | 2 |
| Chloroform | 7.27 | 1,300 | 29 | 195 | 276 | 8 |
| Chloromethane | 170 | 400 | 175 | 248 | 101 | 3 |
| Bis(Chloromethyl) Ether | 250 | 250 | 250 | 250 | 0 | 1 |
| 2-Chloronaphthalene | 46 | 46 | 46 | 46 | 0 | 1 |
| p-Cresol | 45.2 | 5,100 | 2,305 | 2,394 | 2,305 | 10 |
| 2,4-D | 7.4 | 220 | 130 | 129 | 49 | 7 |
| 4,4-DDT | 0.042 | 0.22 | 0.105 | 0.1031 | 0.0356 | 16 |
| Dibromomethane | 5 | 5 | 5 | 5 | 0 | 1 |
| Di-N-Butyl Phthalate | 12 | 150 | 49 | 70.2 | 43.8 | 5 |

## TABLE B-4

## STATISTICAL SUMMARY OF ORGANICS IN MSWLF LEACHATE
(continued)

| Organic Toxicant | Minimum | Maximum | Median | Average | Standard Deviation | Number of Values |
|---|---|---|---|---|---|---|
| 1,2-Dichlorobenzene | 3 | 21.9 | 11.5 | 11.8 | 4.1 | 8 |
| 1,4-Dichlorobenzene | 1 | 52.1 | 7 | 13.2 | 10.6 | 12 |
| Dichlorodifluoromethane | 10.3 | 450 | 274 | 237 | 161 | 6 |
| 1,1-Dichloroethane | 4 | 44,000 | 165 | 1,715 | 2,768 | 34 |
| 1,2-Dichloroethane | 1 | 11,000 | 10 | 1,841 | 3,053 | 6 |
| Cis-1,2-Dichloroethylene | 190 | 470 | 330 | 330 | 140 | 2 |
| Trans-1,2-Dichloroethylene | 2 | 4,800 | 92 | 568 | 721 | 40 |
| 1,2-Dichloropropane | 0.03 | 500 | 9 | 66.7 | 77.8 | 12 |
| 1,3-Dichloropropene | 18 | 30 | 24 | 24 | 6 | 2 |
| Diethyl Phthalate | 3 | 330 | 83 | 118 | 77 | 27 |
| 2,4-Dimethyl Phenol | 10 | 28 | 19 | 19 | 9 | 2 |
| Dimethyl Phthalate | 30 | 55 | 42.5 | 42.5 | 12.5 | 2 |
| Endrin | 0.04 | 50 | 0.25 | 16.8 | 22.2 | 3 |
| Ethanol | 23,000 | 23,000 | 23,000 | 23,000 | 0 | 1 |
| Ethyl Acetate | 42 | 130 | 86 | 86 | 44 | 2 |
| Ethyl Benzene | 6 | 4,900 | 58 | 274 | 333 | 41 |
| Bis(2-Ethylhexyl) Phthalate | 16 | 750 | 80 | 184 | 182 | 10 |
| 2-Hexanone (Methyl Butyl Ketone) | 6 | 690 | 88 | 231 | 202 | 11 |
| Isophorone | 4 | 16,000 | 76 | 1,168 | 1,859 | 19 |
| Lindane | 0.017 | 0.023 | 0.020 | 0.020 | 0.003 | 2 |
| 4-Methyl-2-Pentanone (Methyl Isobutyl Ketone) | 10 | 710 | 270 | 306 | 226 | 9 |

## TABLE B-4

## STATISTICAL SUMMARY OF ORGANICS IN MSWLF LEACHATE
(continued)

| Organic Toxicant | Minimum | Maximum | Median | Average | Standard Deviation | Number of Values |
|---|---|---|---|---|---|---|
| Methylene Chloride (Dichloromethane) | 2 | 220,000 | 440 | 5,352 | 8,446 | 68 |
| Naphthalene | 2 | 202 | 12 | 32.4 | 33.4 | 23 |
| Nitrobenzene | 4 | 120 | 40 | 54.7 | 43.6 | 3 |
| 4-Nitrophenol | 17 | 17 | 17 | 17 | 0 | 1 |
| Pentachlorophenol | 3 | 470 | 45 | 173 | 198 | 3 |
| Phenol | 7.3 | 28,800 | 378 | 2,456 | 3,094 | 45 |
| 1-Propanol | 11,000 | 11,000 | 11,000 | 11,000 | 0 | 1 |
| 2-Propanol | 94 | 26,000 | 8,450 | 10,748 | 7,626 | 4 |
| 1,1,2,2-Tetrachloroethane | 210 | 210 | 210 | 210 | 0 | 1 |
| Tetrachloroethylene | 2 | 620 | 55.4 | 132 | 129 | 18 |
| Tetrahydrofuran | 18 | 1,300 | 260 | 484 | 409 | 7 |
| Toluene | 5.55 | 18,000 | 413 | 1,016 | 1,161 | 69 |
| Toxaphene | 1 | 1 | 1 | 1 | 0 | 1 |
| 1,1,1-Trichloroethane | 1 | 13,000 | 86 | 887 | 1,363 | 20 |
| 1,1,2-Trichloroethane | 30 | 630 | 426 | 378 | 187 | 4 |
| Trichloroethylene | 1 | 1,300 | 43 | 187 | 217 | 28 |
| Trichlorofluormethane | 4 | 150 | 34 | 56.1 | 46.3 | 10 |
| 1,2,3-Trichloropropane | 230 | 230 | 230 | 230 | 0 | 1 |
| Vinyl Chloride | 8 | 61 | 40.2 | 36.1 | 17 | 10 |
| m-Xylene | 9.7 | 171 | 68 | 81 | 53 | 8 |
| Xylenes | 32 | 310 | 71 | 141 | 93 | 7 |

## TABLE B-5

## DATA SUMMARY OF INDICATOR PARAMETERS FOR PRE-1980 AND POST-1980 MSWLFs

| Inorganics Indicator Parameters | Post - 1980 MSWLFs | | | | Pre - 1980 MSWLFs | | | |
|---|---|---|---|---|---|---|---|---|
| | Minimum | Maximum | Median | Number of Sites | Minimum | Maximum | Median | Number of Sites |
| Alkalinity | 3,800 | 4,200 | 3,900 | 1 | 960 | 57,850 | 2,650 | 17 |
| Ammonia | 0.39 | 810 | 299 | 4 | 1.6 | 1,100 | 215 | 21 |
| Biological Oxygen Demand | 13 | 5,980 | 185 | 3 | 64 | 29,200 | 2,600 | 20 |
| Calcium | 657 | 1,060 | 747 | 2 | 146 | 2,100 | 284 | 11 |
| Chemical Oxygen Demand | 42 | 16,000 | 4,300 | 5 | 266 | 50,450 | 2,817 | 29 |
| Chloride | 43 | 2,056 | 820 | 4 | 31 | 2,651 | 550 | 28 |
| Conductivity (umho/cm) | 1,750 | 28,125 | 8,800 | 4 | 300 | 36,000 | 5,450 | 32 |
| eH (mv) | 481 | 481 | 481 | 1 | 411 | 804 | 486 | 3 |
| Fluoride | 0.38 | 1.8 | 0.4 | 2 | 0.11 | 1.1 | 0.28 | 9 |
| Hardness | 2,800 | 3,000 | 2,900 | 1 | 670 | 9,380 | 1,550 | 17 |
| Iron | 2.6 | 695 | 230 | 4 | 2.1 | 2,280 | 93.4 | 31 |
| Nitrate | 0.04 | 0.66 | 0.22 | 3 | 0.01 | 1.4 | 0.135 | 19 |
| Nitrite | 0.05 | 0.05 | 0.05 | 1 | 0.005 | 0.112 | 0.01 | 3 |
| Nitrogen (Kjeldahl) | 81 | 390 | 380 | 2 | 34.41 | 1,470 | 235 | 15 |
| Nitrogen (Organic) | 40 | 60 | 45 | 1 | 4.5 | 100 | 50 | 3 |
| pH (pH units) | 6.17 | 8.39 | 6.91 | 6 | 5.4 | 12.5 | 6.58 | 33 |
| Phosphorus | 0.29 | 7.9 | 1.7 | 3 | 0.325 | 117.18 | 1.31 | 11 |
| Potassium | 363 | 471.8 | 462 | 1 | 17.8 | 1,175 | 239.4 | 14 |
| Sulfate | 24 | 1,300 | 260 | 3 | 8.4 | 1,400 | 118 | 23 |
| Sodium | 69 | 2,574 | 817 | 4 | 12 | 1,830 | 596 | 23 |
| Temperature (Degrees Centigrade) | 11.3 | 11.3 | 11.3 | 1 | 9.6 | 25 | 18 | 3 |
| Total Dissolved Solids | 7,020 | 31,800 | 7,976 | 3 | 390 | 16,120 | 4,230 | 14 |
| Total Suspended Solids | 32 | 960 | 554 | 4 | 23 | 17,800 | 264 | 22 |
| Total Organic Carbon | 20 | 14,500 | 2,860 | 4 | 74 | 13,000 | 810 | 17 |

## TABLE B-6

## DATA SUMMARY OF OTHER INORGANICS OF PRE-1980 AND POST-1980 MSWLFs

| Inorganics<br>Other Inorganics | Post - 1980 MSWLFs | | | | Pre - 1980 MSWLFs | | | |
|---|---|---|---|---|---|---|---|---|
| | Minimum | Maximum | Median | Number of Sites | Minimum | Maximum | Median | Number of Sites |
| Aluminum | 2.2 | 3.4 | 2.6 | 1 | 0.01 | 5.8 | 3.3 | 6 |
| Arsenic | 0.003 | 0.04 | 0.011 | 4 | 0.0002 | 0.982 | 0.015 | 24 |
| Barium | 0.08 | 1.7 | 1.0 | 4 | 0.11 | 5 | 0.58 | 22 |
| Cadmium | 0.003 | 0.02 | 0.0065 | 5 | 0.002 | 0.15 | 0.018 | 15 |
| Chromium (total) | 0.006 | 0.37 | 0.008 | 6 | 0.002 | 1.9 | 0.06 | 28 |
| Copper | 0.02 | 0.07 | 0.031 | 3 | 0.02 | 2.8 | 0.059 | 18 |
| Lead | 0.007 | 0.15 | 0.046 | 5 | 0.031 | 1.6 | 0.072 | 24 |
| Manganese | 1 | 50 | 12.38 | 4 | 0.03 | 79 | 3.26 | 26 |
| Magnesium | 275 | 424 | 412 | 2 | 74 | 780 | 138 | 10 |
| Nickel | 0.05 | 1.6 | 0.185 | 4 | 0.02 | 2.227 | 0.164 | 21 |
| Selenium | 0.002 | 0.002 | 0.002 | 1 | 0.001 | 0.09 | 0.006 | 9 |
| Silver | 0.026 | 0.037 | 0.036 | 2 | 0.0008 | 0.035 | 0.012 | 10 |
| Vanadium | 0.016 | 0.024 | 0.0185 | 1 | 0.009 | 0.024 | 0.014 | 3 |
| Zinc | 0.06 | 6.4 | 0.335 | 4 | 0.03 | 350 | 0.88 | 25 |

# TABLE B-7

## DATA SUMMARY OF ORGANICS FOR PRE-1980 AND POST-1980 MSWLFs

| Organics | Post - 1980 MSWLFs | | | | Pre - 1980 MSWLFs | | | |
|---|---|---|---|---|---|---|---|---|
| | Minimum | Maximum | Median | Number of Sites | Minimum | Maximum | Median | Number of Sites |
| Acetone | 8 | 4,600 | 4,000 | 3 | 170 | 390 | 320 | 2 |
| 2-Butanone (Methyl Ethyl Ketone) | 1,300 | 12,000 | 9,900 | 2 | 195 | 2,800 | 430 | 7 |
| Chloromethane | 400 | 400 | 400 | 1 | 170 | 170 | 170 | 1 |
| p-Cresol | 4,400 | 4,500 | 4,450 | 1 | 45.2 | 78 | 53.5 | 2 |
| 4,4-DDT | 0.042 | 0.22 | 0.11 | 2 | 0.042 | 0.11 | 0.056 | 1 |
| 1,1-Dichlorethane | 4 | 4 | 4 | 1 | 4 | 6,300 | 220 | 12 |
| Trans-1,2-Dichlorethylene | 6 | 677 | 14 | 2 | 7 | 3,130 | 168 | 13 |
| Diethyl Phthalate | 32 | 32 | 32 | 1 | 3 | 330 | 92.4 | 9 |
| 2-Hexanone (Methyl Butyl Ketone) | 39 | 690 | 360 | 2 | 6 | 12 | 9 | 1 |
| Isophorone | 25 | 25 | 25 | 1 | 4 | 16,000 | 91 | 5 |
| Methylene Chloride (Dichloromethane) | 6 | 690 | 120 | 4 | 2 | 57,000 | 1,100 | 15 |
| Phenol | 378 | 2,100 | 1,700 | 2 | 7.3 | 15,800 | 258 | 12 |
| Toluene | 83 | 1,100 | 590 | 3 | 5.55 | 13,300 | 420 | 16 |

# TABLE B-8

# DATA SUMMARY OF HAZARDOUS WASTE LANDFILLS AND POST-1980 MSWLFs

| Constituent | HAZARDOUS WASTE LANDFILLS | | | POST - 1980 MSWLFs | | |
|---|---|---|---|---|---|---|
| | Concentration Range | Median | Number of Sites | Concentration Range | Median | Number of Sites |
| Alkalinity | 540 | 540 | 1 | 3,800 - 4,200 | 3,900 | 1 |
| Ammonia | 870 | 870 | 1 | 0.39 - 810 | 299 | 4 |
| Biological Oxygen Demand | 30 - 22,500 | 13,400 | 2 | 13 - 5,980 | 185 | 3 |
| Calcium | 0.150 - 820 | 72 | 5 | 657 - 1,060 | 747 | 2 |
| Chemical Oxygen Demand | 47 - 22,000 | 12,600 | 2 | 42 - 16,000 | 4,300 | 5 |
| Chloride | 40 - 8,420 | 2,028 | 3 | 43 - 2,056 | 820 | 4 |
| Conductivity (umho/cm) | 430 - 20,000 | 20,000 | 2 | 1,750 - 28,125 | 8,800 | 4 |
| Hardness | 265 - 4,550 | 2,930 | 2 | 2,800 - 3,000 | 2,900 | 1 |
| Iron | 0.3 - 491.4 | 17.2 | 8 | 2.6 - 695 | 230 | 4 |
| Nitrogen (Organic) | 22.8 | 22.8 | 1 | 40 - 60 | 45 | 1 |
| pH (pH units) | 6.6 - 7.0 | 6.9 | 3 | 6.17 - 8.39 | 6.91 | 6 |
| Potassium | 3.1 - 1,500 | 34 | 4 | 363 - 471.8 | 462 | 1 |
| Sulfate | 112 - 1,600 | 399 | 3 | 24 - 1,300 | 260 | 3 |
| Sodium | 24.7 - 5,200 | 377 | 4 | 69 - 2,574 | 817 | 4 |
| Total Dissolved Solids | 2,883 - 18,242 | 10,562 | 2 | 7,020 - 31,800 | 7,976 | 3 |
| Total Suspended Solids | 1,470 | 1,470 | 1 | 32 - 960 | 554 | 4 |
| Total Organic Carbon | 13.8 - 12,200 | 4,624 | 2 | 20 - 14,500 | 2,860 | 4 |
| Aluminum | 0.49 - 78 | 2.2 | 3 | 2.2 - 3.4 | 2.6 | 1 |
| Arsenic | 0.004 - 120 | 2.78 | 4 | 0.003 - 0.04 | 0.011 | 4 |
| Barium | 0.2 - 2.32 | 0.84 | 4 | 0.08 - 1.7 | 1.0 | 4 |

## TABLE B-8

## DATA SUMMARY OF HAZARDOUS WASTE LANDFILLS AND POST-1980 MSWLFs
(continued)

| Constituent | HAZARDOUS WASTE LANDFILLS | | | POST - 1980 MSWLFs | | |
|---|---|---|---|---|---|---|
| | Concentration Range | Median | Number of Sites | Concentration Range | Median | Number of Sites |
| Cadmium | 0.0059 - 125.5 | 0.6 | 6 | 0.003 - 0.02 | 0.0065 | 5 |
| Chromium (Total) | 0.011 - 0.87 | 0.110 | 7 | 0.006 - 0.37 | 0.008 | 6 |
| Copper | 0.0204 - 1.62 | 0.215 | 8 | 0.02 - 0.07 | 0.031 | 3 |
| Lead | 0.0124 - 11.73 | 0.48 | 5 | 0.007 - 0.15 | 0.046 | 5 |
| Manganese | 0.18 - 89.42 | 7.65 | 5 | 1 - 50 | 12.38 | 4 |
| Magnesium | 0.830 - 610 | 25.4 | 5 | 275 - 424 | 412 | 2 |
| Nickel | 0.064 - 4.02 | 0.272 | 6 | 0.05 - 1.6 | 0.185 | 4 |
| Selenium | 6.53 | 6.53 | 1 | 0.002 - 0.002 | 0.002 | 1 |
| Silver | 0.02 | 0.02 | 1 | 0.026 - 0.037 | 0.036 | 2 |
| Vanadium | 0.150 | 0.150 | 1 | 0.016 - 0.024 | 0.0185 | 1 |
| Zinc | 0.05 - 12 | 0.536 | 9 | 0.06 - 6.4 | 0.335 | 4 |
| Acetone | 60,000 | 60,000 | 1 | 8 - 4,600 | 4,000 | 3 |
| Chloromethane | 340 | 340 | 1 | 400 - 400 | 400 | 1 |
| 1,1-Dichloroethane | 32 - 35,000 | 594 | 2 | 4 - 4 | 4 | 1 |
| Trans-1,2-Dichloroethylene | 45 - 4,650 | 2,350 | 2 | 6 - 677 | 14 | 2 |
| Diethyl Phthalate | 83 | 83 | 1 | 32 - 32 | 32 | 1 |
| Isophorone | 26 - 390 | 208 | 1 | 25 - 25 | 25 | 1 |
| Methylene Chloride (Dichlormethane) | 130 - 270,000 | 7,715 | 4 | 6 - 690 | 120 | 4 |
| Phenol | 0.002 - 3,100 | 1.09 | 4 | 378 - 2,100 | 1,700 | 2 |
| Toluene | 0.027 - 12,000 | 880 | 8 | 83 - 1,100 | 590 | 3 |

# APPENDIX C

## SUPPORTING DATA

NOTES

1. Concentrations of all inorganic constituents in parts per million unless noted otherwise; concentrations of organic constituents in parts per billion.

2. Standards used in tables are included in Table C-13; selection of standards used is discussed in the text.

3. "Pre-1980 MSWLF" refers to municipal solid waste landfills constructed prior to or during 1980; "post-1980 MSWLF" refers to landfills constructed after 1980. Unless distinguished by "pre-1980", "post-1980", or "undated", MSWLF refers to pre-1980, post-1980, and undated municipal solid waste landfills.

4. The indicated ratios encompass the range between the nearest lower and upper half logs (base ten); for instance, around "one", the range is between the log values of -0.5 to 0.5; in non-log values, from 1/3.15 to 3.15/1.

5. Inorganic constituents include both indicator parameters (e.g., pH, iron) and other inorganic constituents.

6. Abbreviations used in this appendix include "NA" - not applicable; "--" - not available; "inorg" - inorganic constituents; "org" - organic constituents; "ND" - constituents not detected; and "DET" - constituents detected.

7. Percentages may not total to 100 due to rounding.

# TABLES AND FIGURES IN APPENDIX C

Figure

C-1 Pre-1980 vs Post-1980 Minimum MSWLF Leachate Concentrations
C-2 Pre-1980 vs Post-1980 Maximum MSWLF Leachate Concentrations
C-3 Average MSWLF Leachate Concentrations vs Standards

Table

C-1 Number of Inorganic Constituents Detected and Number Not Detected in Pre- and Post-1980 MSWLF Leachate
C-2 Number of Organic Constituents Detected and Number Not Detected in Pre- and Post-1980 MSWLF Leachate
C-3 Log Ratios of Pre-1980 vs Post-1980 Median MSWLF Leachate Concentrations
C-4 Distribution of Ratios of Pre-1980 to Post-1980 Median MSWLF Leachate Concentrations
C-5 Log Ratios of Pre-1980 vs Post-1980 Minimum MSWLF Leachate Concentrations
C-6 Distribution of Ratios of Minimum MSWLF Leachate Concentrations vs Standards
C-7 Log Ratios of Pre-1980 vs Post-1980 Maximum MSWLF Leachate Concentrations
C-8 Distribution of Ratios of Maximum MSWLF Leachate Concentrations vs Standards
C-9 Log Ratios of Hazardous Waste Landfill vs Post-1980 MSWLF Leachate Concentrations
C-10 Distribution of Ratios of Hazardous Waste Landfill vs Post-1980 MSWLF Leachate Concentrations
C-11 Log Ratios of Median MSWLF Leachate Concentrations vs Standards
C-12 Distribution of Ratios of Median MSWLF Leachate Concentrations vs Standards
C-13 Comparison of Average MSWLF Leachate Concentrations to Standards

## TABLES AND FIGURES IN APPENDIX C
(continued)

Table

C-14 Number of Pre-1980 MSWLF Leachate Constituents Exceeding Standards, by Site

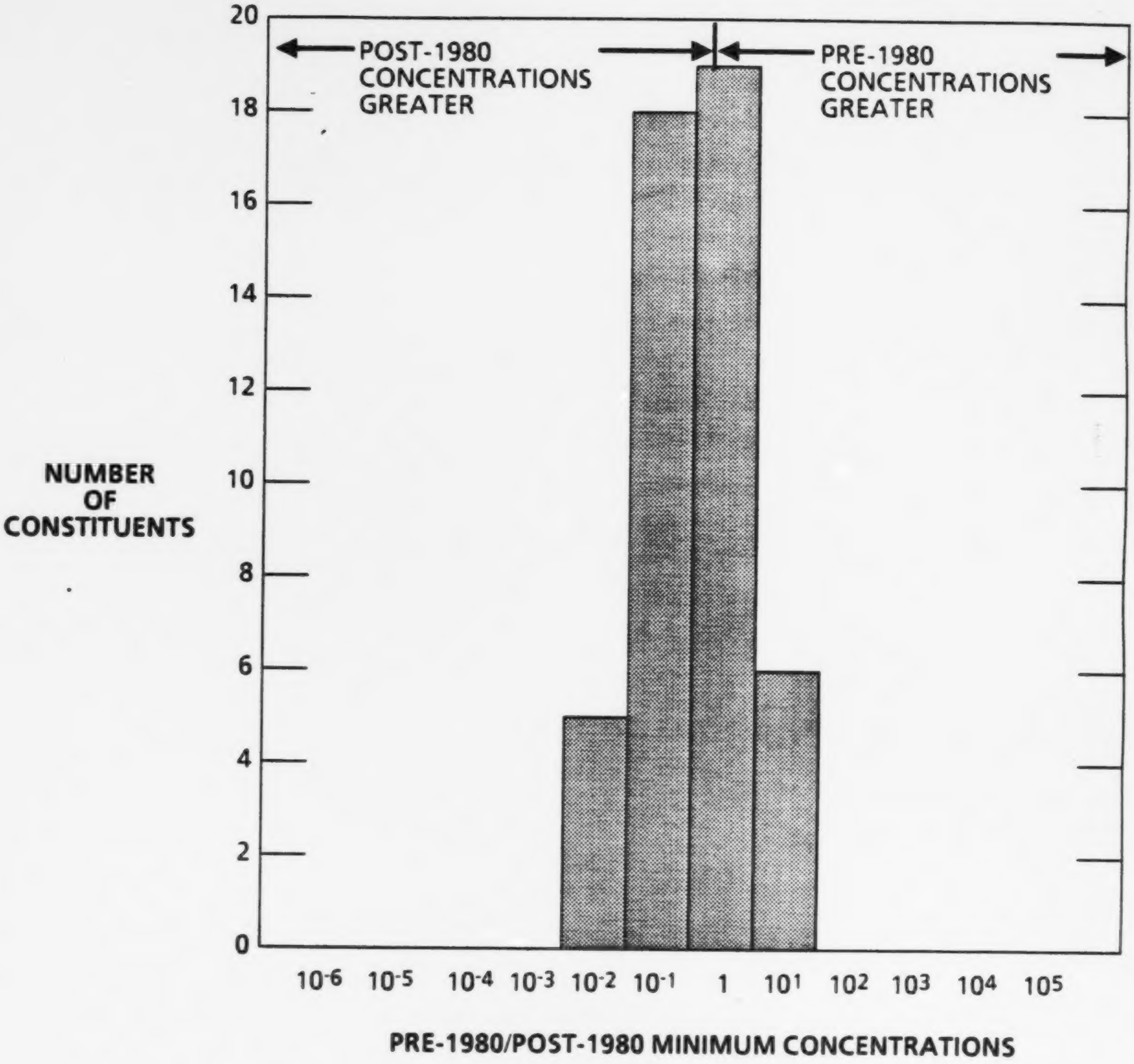
C-15 Number of Post-1980 MSWLF Leachate Constituents Exceeding Standards, by Site

C-16 Number of Undated MSWLF Leachate Constituents Exceeding Standards, by Site

C-17 Number of Hazardous Waste Landfill Leachate Constituents Exceeding Standards, by Site

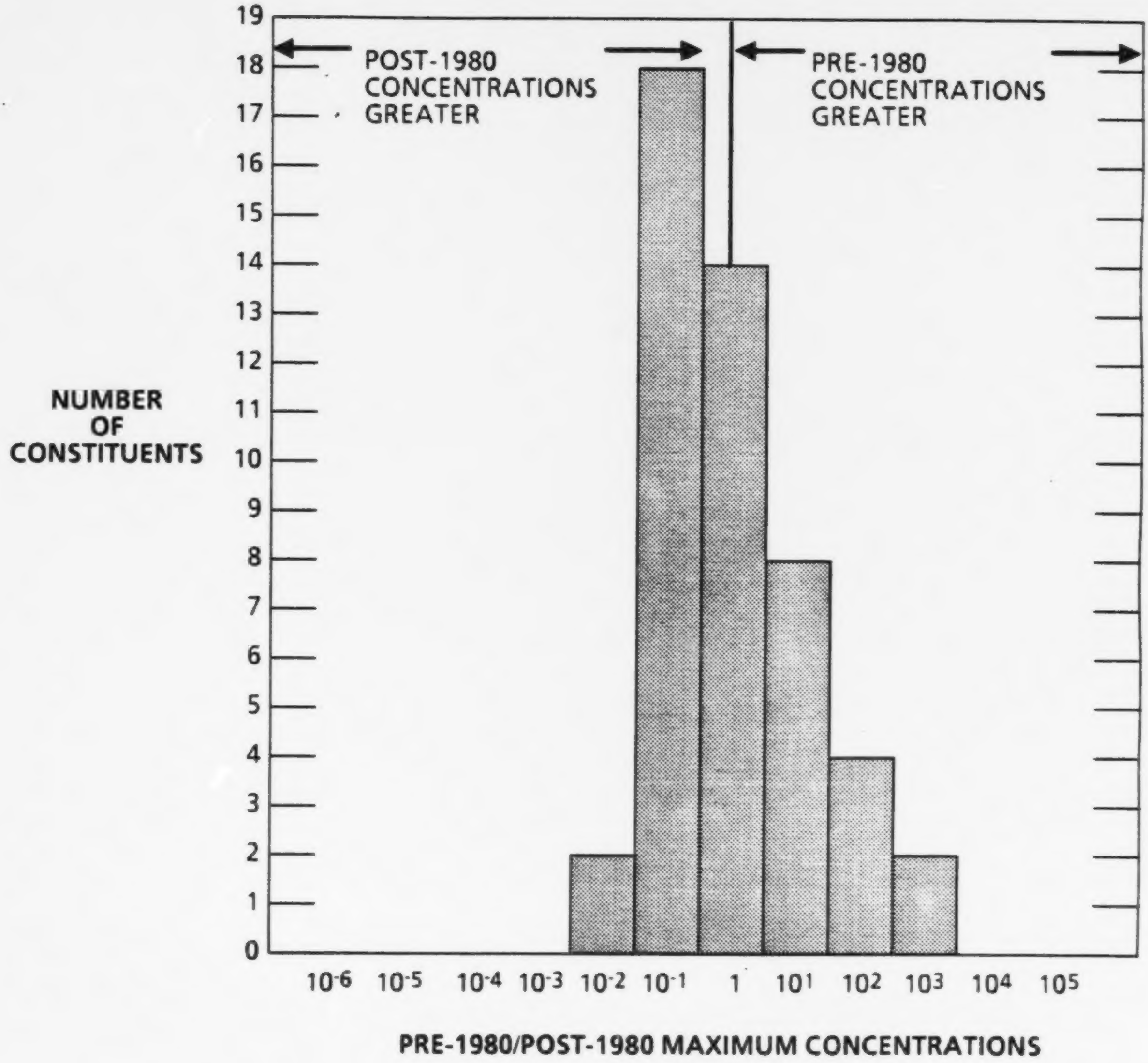
## FIGURE C-1

## PRE-1980 VS POST-1980 MINIMUM MSWLF LEACHATE CONCENTRATIONS



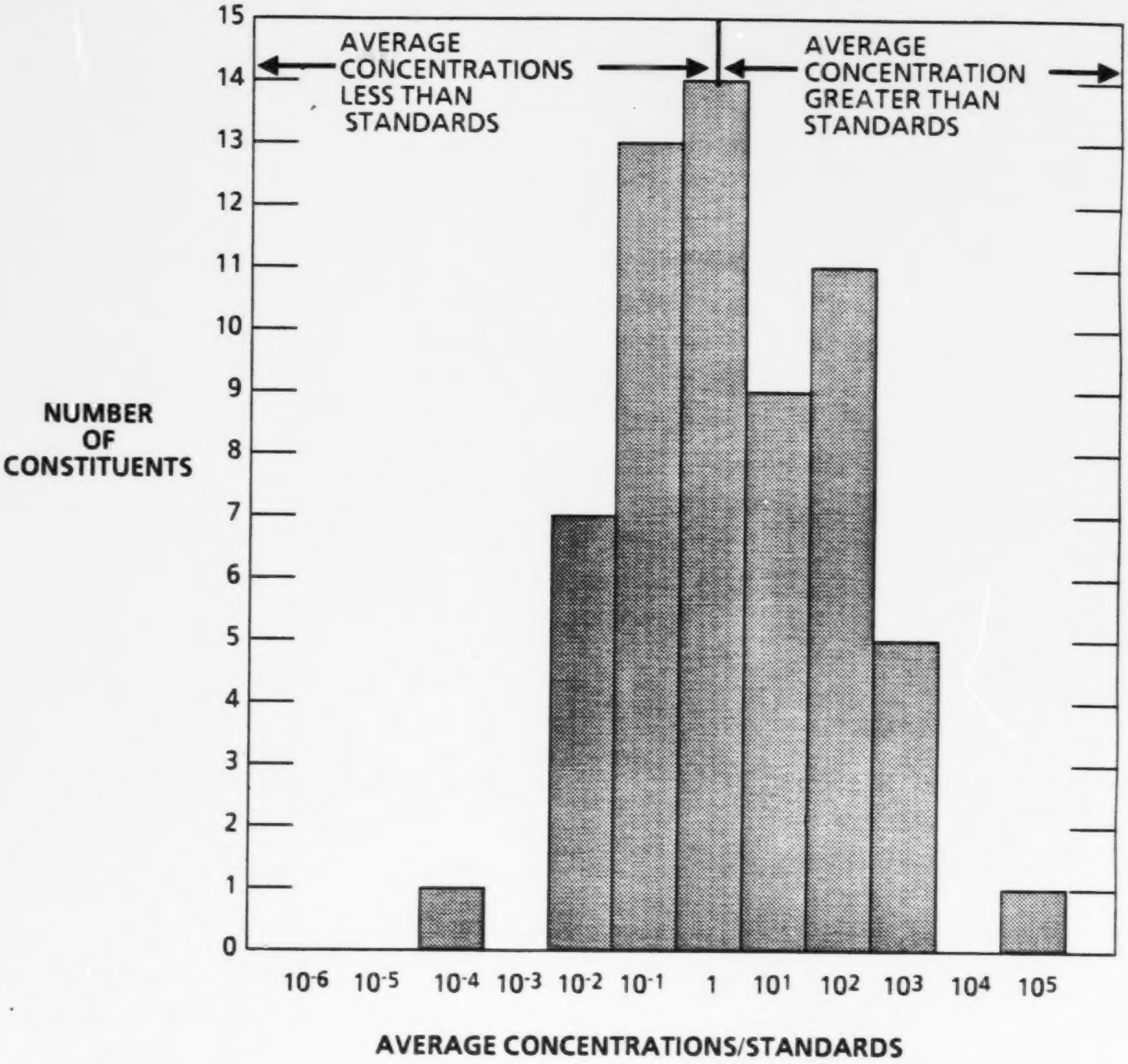
## FIGURE C-2

## PRE-1980 VS POST-1980 MAXIMUM MSWLF LEACHATE CONCENTRATIONS



## FIGURE C-3

## AVERAGE MSWLF LEACHATE CONCENTRATION VS STANDARDS



## TABLE C-1

## NUMBER OF INORGANIC CONSTITUENTS DETECTED AND NUMBER NOT DETECTED IN PRE- AND POST-1980 MSWLF LEACHATE

| Constituents[1] | Pre-1980 | | | | | Post-1980 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | ND | DET | Total | % ND | % DET | ND | DET | Total | % ND | % DET |
| **Indicator Parameters[2]** | | | | | | | | | | |
| Alkalinity | 0 | 23 | 23 | 0 | 100 | 0 | 4 | 4 | 0 | 100 |
| Ammonia | 0 | 40 | 40 | 0 | 100 | 0 | 11 | 11 | 0 | 100 |
| Biological Oxygen Demand | 0 | 55 | 55 | 0 | 100 | 0 | 10 | 10 | 0 | 100 |
| Calcium | 0 | 17 | 17 | 0 | 100 | 0 | 5 | 5 | 0 | 100 |
| Chemical Oxygen Demand | 0 | 80 | 80 | 0 | 100 | 0 | 17 | 17 | 0 | 100 |
| Chloride | 0 | 79 | 79 | 0 | 100 | 0 | 13 | 13 | 0 | 100 |
| Fluoride | 9 | 12 | 21 | 43 | 57 | 4 | 5 | 9 | 0 | 56 |
| Hardness | 0 | 23 | 23 | 0 | 100 | 0 | 4 | 4 | 0 | 100 |
| Iron | 0 | 82 | 82 | 0 | 100 | 0 | 13 | 13 | 0 | 100 |
| Nitrate | 3 | 22 | 25 | 12 | 88 | 0 | 4 | 4 | 0 | 100 |
| Nitrite | 2 | 3 | 5 | 40 | 60 | 0 | 2 | 2 | 0 | 60 |
| Nitrogen (Kjeldahl) | 0 | 23 | 23 | 0 | 100 | 0 | 5 | 5 | 0 | 100 |
| Nitrogen (organic) | 0 | 10 | 10 | 0 | 100 | 0 | 4 | 4 | 0 | 100 |
| Phosphate | 0 | 2 | 2 | 0 | 100 | 0 | 0 | 0 | -- | 100 |
| Phosphorus | 0 | 20 | 20 | 0 | 100 | 0 | 14 | 14 | 0 | 100 |
| Potassium | 0 | 20 | 20 | 0 | 100 | 0 | 4 | 4 | 0 | 100 |

[1] Includes only constituents detected at least once.

[2] pH, eH and temperature not included.

## TABLE C-1

## NUMBER OF INORGANIC CONSTITUENTS DETECTED AND NUMBER NOT DETECTED IN PRE- AND POST-1980 MSWLF LEACHATE
(continued)

| Constituents | Pre-1980 | | | | | Post-1980 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | ND | DET | Total | % ND | % DET | ND | DET | Total | % ND | % DET |
| Sulfate | 0 | 62 | 62 | 0 | 100 | 0 | 8 | 8 | 0 | 100 |
| Sodium | 0 | 38 | 38 | 0 | 100 | 0 | 13 | 13 | 0 | 100 |
| Total Dissolved Solids | 0 | 52 | 52 | 0 | 100 | 0 | 7 | 7 | 0 | 100 |
| Total Suspended Solids | 0 | 74 | 74 | 0 | 100 | 0 | 14 | 14 | 0 | 100 |
| Total Organic Carbon | 0 | 43 | 43 | 0 | 100 | 0 | 13 | 13 | 0 | 100 |
| Total Solids | 0 | 7 | 7 | 0 | 100 | 0 | 0 | 0 | -- | -- |
| Subtotals | 14 | 787 | 801 | 2 | 98 | 4 | 170 | 174 | 2 | 98 |
| Other Inorganics | | | | | | | | | | |
| Aluminum | 6 | 8 | 14 | 75 | 25 | 0 | 4 | 4 | -- | -- |
| Antimony | 10 | 6 | 16 | 63 | 37 | 4 | 0 | 4 | 100 | 0 |
| Arsenic | 5 | 47 | 52 | 10 | 90 | 0 | 11 | 11 | 0 | 100 |
| Barium | 3 | 36 | 39 | 8 | 92 | 0 | 10 | 10 | 0 | 100 |
| Beryllium | 11 | 4 | 15 | 73 | 27 | 4 | 0 | 4 | 100 | 0 |
| Boron | 0 | 6 | 6 | 0 | 100 | 0 | 0 | 0 | -- | -- |
| Cadmium | 9 | 26 | 35 | 26 | 74 | 2 | 6 | 8 | 25 | 75 |
| Chromium (total) | 3 | 59 | 62 | 5 | 95 | 0 | 19 | 19 | 0 | 0 |
| Cobalt | 9 | 4 | 13 | 69 | 31 | 4 | 0 | 4 | 100 | 64 |
| Copper | 13 | 46 | 59 | 22 | 78 | 4 | 7 | 11 | 36 | 64 |
| Cyanide | 10 | 19 | 29 | 35 | 65 | 4 | 0 | 4 | 100 | 0 |
| Lead | 7 | 45 | 52 | 14 | 86 | 2 | 8 | 10 | 20 | 100 |

## TABLE C-1

## NUMBER OF INORGANIC CONSTITUENTS DETECTED AND NUMBER NOT DETECTED IN PRE- AND POST-1980 MSWLF LEACHATE
(continued)

| Constituents | Pre-1980 | | | | | Post-1980 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | ND | DET | Total | % ND | % DET | ND | DET | Total | % ND | % DET |
| Manganese | 0 | 74 | 74 | 0 | 100 | 0 | 12 | 12 | 0 | 100 |
| Magnesium | 0 | 16 | 16 | 0 | 100 | 0 | 5 | 5 | 0 | 100 |
| Mercury | 14 | 12 | 26 | 54 | 46 | 4 | 0 | 4 | 100 | 0 |
| Nickel | 8 | 68 | 76 | 11 | 89 | 2 | 12 | 14 | 14 | 86 |
| Selenium | 10 | 10 | 20 | 50 | 50 | 4 | 1 | 5 | 80 | 20 |
| Silver | 12 | 11 | 23 | 62 | 48 | 4 | 3 | 7 | 57 | 43 |
| Thallium | 9 | 9 | 18 | 50 | 50 | 4 | 0 | 4 | 100 | 0 |
| Tin | 9 | 3 | 12 | 75 | 25 | 4 | 0 | 4 | 100 | 0 |
| Vanadium | 0 | 9 | 9 | 0 | 100 | 0 | 4 | 4 | 0 | 100 |
| Zinc | 1 | 74 | 75 | 1 | 99 | 0 | 14 | 14 | 0 | 100 |
| Subtotals | 149 | 592 | 741 | 20 | 80 | 46 | 116 | 162 | 28 | 72 |
| TOTALS | 163 | 1,379 | 1,542 | 10 | 90 | 50 | 286 | 336 | 14 | 86 |

## TABLE C-2

## NUMBER OF ORGANIC CONSTITUENTS DETECTED AND NUMBER NOT DETECTED IN PRE- AND POST-1980 MSWLF[1] LEACHATE

| Constituents | Pre-1980 | | | | | Post-1980 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | ND | DET | Total | % ND | % DET | ND | DET | Total | % ND | % DET |
| Acetone | 4 | 5 | 9 | 44 | 56 | 1 | 9 | 10 | 10 | 90 |
| Acrolein | 49 | 1 | 50 | 98 | 2 | 11 | 0 | 11 | 100 | 0 |
| Benzene | 24 | 31 | 55 | 44 | 56 | 1 | 0 | 11 | 100 | 0 |
| Bromomethane | 53 | 1 | 54 | 98 | 2 | 11 | 0 | 11 | 100 | 0 |
| 2-Butanune (MEK) | 1 | 7 | 8 | 13 | 88 | 3 | 7 | 10 | 30 | 70 |
| Butyl benzyl phenol | 22 | 3 | 25 | 88 | 12 | 0 | 0 | 0 | -- | -- |
| Carbon tetrachloride | 54 | 0 | 54 | 100 | 0 | 11 | 0 | 11 | 100 | 0 |
| Chlorobenzene | 43 | 8 | 51 | 84 | 16 | 1 | 0 | 1 | 100 | |
| Chloroethane | 43 | 10 | 53 | 81 | 19 | 11 | 0 | 11 | 100 | 0 |
| Bis (2-chloroeh toxy) methane | 40 | 2 | 42 | 95 | 5 | 11 | 0 | 11 | 100 | 0 |
| 2-Chloroethyl vinyl ether | 52 | 2 | 54 | 96 | 4 | 11 | 0 | 11 | 100 | 0 |
| Chloroform | 48 | 7 | 55 | 87 | 13 | 11 | 0 | 11 | 100 | 0 |
| Chloromethane | 53 | 1 | 54 | 98 | 2 | 11 | 1 | 12 | 91 | 9 |
| Bis (chloromethyl) ether | 38 | 1 | 39 | 97 | 3 | 1 | 0 | 1 | 100 | 0 |
| 2-Chloronapthalene | 38 | 1 | 39 | 97 | 3 | 1 | 0 | 1 | 100 | 0 |
| p-Creosol | 1 | 4 | 5 | 20 | 80 | 6 | 4 | 10 | 60 | 50 |
| 2,4-D | 8 | 4 | 12 | 67 | 33 | 13 | 0 | 13 | 100 | 0 |
| 4,4-DDT | 39 | 3 | 42 | 93 | 7 | 4 | 7 | 11 | 36 | 64 |

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[1] Butanol, 1-butanol and ethanol, which were analyzed for only once each, are not included

# TABLE C-2

## NUMBER OF ORGANIC CONSTITUENTS DETECTED AND NUMBER NOT DETECTED IN PRE- AND POST-1980 MSWLF LEACHATE (continued)

| Constituents[1] | Pre-1980 | | | | | Post-1980 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | ND | DET | Total | % ND | % DET | ND | DET | Total | % ND | % DET |
| Dibromomethane | 3 | 0 | 3 | 100 | 0 | 0 | 0 | 0 | -- | -- |
| Di-n-butyl phthalate | 37 | 5 | 42 | 88 | 12 | 11 | 0 | 11 | 100 | 0 |
| 1,2-Dichlorobenzene | 41 | 7 | 48 | 85 | 15 | 11 | 0 | 11 | 100 | 0 |
| 1,4-Dichlorobenzene | 35 | 11 | 46 | 76 | 24 | 11 | 0 | 11 | 100 | 0 |
| Dichlorodifluoromethane | 43 | 4 | 47 | 91 | 9 | 11 | 0 | 11 | 100 | 0 |
| 1,1-Dichloroethane | 28 | 26 | 54 | 52 | 48 | 10 | 1 | 11 | 91 | 9 |
| 1,2-Dichloroethane | 49 | 5 | 54 | 91 | 9 | 11 | 0 | 11 | 100 | 0 |
| Trans-1,2-dichloroethylene | 24 | 29 | 53 | 45 | 55 | 7 | 4 | 11 | 64 | 36 |
| 1,2-Dichloropropane | 47 | 7 | 54 | 87 | 13 | 11 | 0 | 11 | 100 | 0 |
| 1,3-Dichloropropene | 51 | 2 | 53 | 96 | 4 | 11 | 0 | 11 | 100 | 0 |
| Diethyl phthalate | 17 | 24 | 41 | 42 | 59 | 10 | 1 | 11 | 91 | 9 |
| 2,4-Dimethyl phenol | 43 | 2 | 45 | 96 | 4 | 11 | 0 | 11 | 100 | 0 |
| Dimethly phthalate | 40 | 2 | 42 | 95 | 5 | 11 | 0 | 11 | 100 | 0 |
| Endrin | 46 | 0 | 46 | 100 | 0 | 14 | 0 | 14 | 100 | 0 |
| Ethyl benzene | 22 | 32 | 54 | 41 | 59 | 11 | 0 | 11 | 100 | 0 |
| Bis (2-ethylhexyl) phthalate | 34 | 8 | 42 | 81 | 19 | 11 | 0 | 11 | 100 | 0 |
| 2-Hexanone | 4 | 2 | 6 | 67 | 33 | 3 | 7 | 10 | 30 | 70 |
| Isophorone | 24 | 18 | 42 | 57 | 43 | 10 | 1 | 11 | 91 | 9 |
| Lindane | 8 | 0 | 8 | 100 | 0 | 11 | 2 | 13 | 80 | 20 |
| 4-Methyl-2-pentanone | 3 | 0 | 3 | 100 | 0 | 6 | 4 | 10 | 60 | 40 |
| Methylene chloride | 16 | 39 | 55 | 29 | 71 | 0 | 11 | 11 | 0 | 100 |

## TABLE C-2

## NUMBER OF ORGANIC CONSTITUENTS DETECTED AND NUMBER NOT DETECTED IN PRE- AND POST 1980 MSWLF LEACHATE (continued)

| Constituents[1] | Pre-1980 | | | | | Post-1980 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | ND | DET | Total | % ND | % DET | ND | DET | Total | % ND | % DET |
| Napthalene | 23 | 21 | 44 | 52 | 48 | 11 | 0 | 11 | 100 | 0 |
| Nitrobenzene | 41 | 3 | 44 | 93 | 7 | 11 | 0 | 11 | 100 | 0 |
| 4-Nitrophenol | 44 | 1 | 45 | 98 | 2 | 11 | 0 | 11 | 100 | 0 |
| Pentachlorophenol | 43 | 3 | 46 | 93 | 7 | 11 | 0 | 11 | 100 | 0 |
| Phenol | 15 | 30 | 45 | 33 | 67 | 6 | 5 | 11 | 55 | 45 |
| 1-Propanol | 1 | 0 | 1 | 100 | 0 | 0 | 0 | 0 | -- | -- |
| 2-Propanol | 1 | 0 | 1 | 100 | 0 | 0 | 0 | 0 | -- | -- |
| 1,1,2,2-Tetrachloroethane | 50 | 1 | 51 | 98 | 2 | 11 | 0 | 11 | 100 | 0 |
| Tetrachloroethylene | 41 | 13 | 54 | 76 | 24 | 11 | 0 | 11 | 100 | 0 |
| Tetrahydrofuran | 0 | 3 | 3 | 0 | 100 | 0 | 0 | 0 | -- | -- |
| Toluene | 9 | 45 | 54 | 17 | 83 | 4 | 7 | 11 | 36 | 64 |
| Toxaphene | 48 | 0 | 48 | 100 | 0 | 14 | 0 | 14 | 100 | 0 |
| 1,1,1-Trichloroethane | 37 | 13 | 50 | 74 | 26 | 0 | 0 | 0 | 100 | 0 |
| 1,1,2-Trichloroethane | 51 | 3 | 54 | 94 | 6 | 11 | 0 | 11 | 100 | 0 |
| Trichloroethylene | 34 | 21 | 55 | 62 | 38 | 11 | 0 | 11 | 100 | 0 |
| Trichlorofluoromethane | 45 | 7 | 52 | 87 | 14 | 11 | 0 | 11 | 100 | 0 |
| 1,2,3-Trichloropropane | 5 | 0 | 5 | 100 | 0 | 9 | 1 | 10 | 90 | 10 |
| Vinyl chloride | 44 | 10 | 54 | 81 | 19 | 11 | 0 | 11 | 100 | 0 |
| M-xylene | 1 | 4 | 5 | 20 | 80 | 0 | 0 | 0 | -- | -- |
| Xylenes | 3 | 5 | 8 | 38 | 63 | 10 | 0 | 10 | 100 | 0 |
| TOTALS | 1,761 | 497 | 2,268 | -- | -- | 475 | 72 | 547 | -- | -- |

## TABLE C-3

## LOG RATIOS OF PRE-1980 VS POST-1980 MEDIAN MSWLF LEACHATE CONCENTRATIONS

| Constituent | Post-1980 | Pre-1980 | Log Ratio Pre/Post |
|---|---|---|---|
| **INORGANICS** | | | |
| **Indicator Parameters*** | | | |
| Nitrite | 0.05 | 0.01 | -0.70 |
| TOC | 2,860 | 810 | -0.55 |
| Calcium | 747 | 284 | -0.42 |
| Iron | 230 | 93.4 | -0.39 |
| Sulfate | 260 | 118 | -0.34 |
| TSS | 554 | 264 | -0.32 |
| Potassium | 462 | 239.4 | -0.29 |
| TDS | 7,976 | 4,230 | -0.28 |
| Hardness | 2,900 | 1,550 | -0.27 |
| Nitrate | 0.22 | 0.135 | -0.21 |
| Nitrogen (Kjeldahl) | 380 | 235 | -0.21 |
| Sp. Cond. (umho/cm) | 8,800 | 5,450 | -0.21 |
| COD | 4,300 | 2,817 | -0.18 |
| Chloride | 820 | 550 | -0.17 |
| Alkalinity | 3,900 | 2,650 | -0.17 |
| Fluoride | 0.4 | 0.28 | -0.15 |
| Ammonia | 299 | 215 | -0.14 |
| Sodium | 817 | 596 | -0.14 |
| Phosporus | 1.7 | 1.31 | -0.11 |
| Nitrogen (organic) | 45 | 50 | 0.05 |
| BOD | 185 | 2,600 | 1.15 |
| SUBTOTAL | 36,037 | 23,264 | -- |
| **Other Inorganics** | | | |
| Manganese | 12.38 | 3.26 | -0.58 |
| Silver | 0.036 | 0.012 | -0.48 |
| Magensium | 412 | 138 | -0.48 |
| Barium | 1 | 0.58 | -0.24 |
| Vanadium | 0.0185 | 0.014 | -0.12 |
| Nickel | 0.185 | 0.164 | -0.05 |
| Aluminum | 2.6 | 3.3 | 0.10 |
| Arsenic | 0.011 | 0.015 | 0.13 |
| Lead | 0.046 | 0.072 | 0.19 |
| Copper | 0.031 | 0.059 | 0.28 |

* pH, eH and temperature not included

## TABLE C-3

## LOG RATIOS OF PRE-1980 VS POST-1980 MEDIAN MSWLF LEACHATE CONCENTRATIONS (continued)

| Constituent | Post-1980 | Pre-1980 | Log Ratio Pre/Post |
|---|---|---|---|
| **INORGANICS (continued)** | | | |
| Zinc | 0.335 | 0.88 | 0.42 |
| Cadmium | 0.0065 | 0.018 | 0.44 |
| Selenium | 0.002 | 0.006 | 0.48 |
| Chromium (Total) | 0.008 | 0.06 | 0.88 |
| SUBTOTAL | 429 | 146 | -- |
| **ORGANICS** | | | |
| p-Cresol | 4450 | 53.5 | -1.92 |
| 2-Hexanone | 360 | 9 | -1.60 |
| 2-Butanone | 9900 | 430 | -1.36 |
| Acetone | 4000 | 320 | -1.10 |
| Phenol | 1700 | 258 | -0.82 |
| Chloromethane | 400 | 170 | -0.37 |
| 4,4-DDT | 0.11 | 0.056 | -0.29 |
| Toluene | 590 | 420 | -0.15 |
| Diethyl Phthalate | 32 | 92.4 | 0.46 |
| Isophorone | 25 | 91 | 0.56 |
| Methylene Chloride | 120 | 1100 | 0.96 |
| Trans-1,2-Dichloroethylene | 14 | 168 | 1.08 |
| 1,1-Dichloroethane | 4 | 220 | 1.74 |
| SUBTOTAL | 21,595 | 3,332 | -- |

## TABLE C-4

## DISTRIBUTION OF RATIOS OF PRE-1980 TO POST-1980 MEDIAN MSWLF LEACHATE CONCENTRATIONS

| Ratio | Indicator Parameters* | Percent | Other Inorganics | Percent | Organic | Percent | Total | Percent |
|---|---|---|---|---|---|---|---|---|
| $10^{-6}$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| $10^{-5}$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| $10^{-4}$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| $10^{-3}$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| $10^{-2}$ | 0 | 0 | 0 | 0 | 2 | 15 | 2 | 4 |
| $10^{-1}$ | 2 | 10 | 1 | 7 | 3 | 23 | 6 | 13 |
| 1 | 18 | 86 | 12 | 86 | 4 | 31 | 34 | 71 |
| 10 | 1 | 5 | 1 | 7 | 3 | 23 | 5 | 10 |
| $10^2$ | 0 | 0 | 0 | 0 | 1 | 8 | 1 | 2 |
| $10^3$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| $10^4$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| $10^5$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 21 | 100 | 14 | 100 | 13 | 100 | 48 | 100 |

* pH, eH and temperature not included

## TABLE C-5

## LOG RATIOS OF PRE-1980 VS POST-1980 MINIMUM MSWLF LEACHATE CONCENTRATIONS

| Constituent | Post-1980 | Pre-1980 | Log Ratio Pre/Post |
|---|---|---|---|
| **INORGANICS** | | | |
| Indicator Parameters* | | | |
| Potassium | 363 | 17.8 | -1.31 |
| TDS | 7,020 | 390 | -1.26 |
| Nitrite | 0.05 | 0.005 | -1.00 |
| Nitrogen (organic) | 40 | 4.5 | -0.95 |
| Sp. Cond. (umho/cm) | 1,750 | 300 | -0.77 |
| Sodium | 69 | 12 | -0.76 |
| Calcium | 657 | 146 | -0.65 |
| Hardness | 2,800 | 670 | -0.62 |
| Nitrate | 0.04 | 0.01 | -0.60 |
| Alkalinity | 3,800 | 960 | -0.60 |
| Fluoride | 0.38 | 0.11 | -0.54 |
| Sulfate | 24 | 8.4 | -0.46 |
| Nitrogen (Kjeldahl) | 81 | 34.41 | -0.37 |
| TSS | 32 | 23 | -0.14 |
| Chloride | 43 | 31 | -0.14 |
| Iron | 2.6 | 2.1 | -0.09 |
| Phosphorus | 0.29 | 0.325 | 0.05 |
| TOC | 20 | 74 | 0.57 |
| Ammonia | 0.39 | 1.6 | 0.61 |
| BOD | 13 | 64 | 0.69 |
| COD | 42 | 266 | 0.80 |
| SUBTOTAL | 17,256 | 3,431 | -- |
| Other Inorganics | | | |
| Aluminum | 2.2 | 0.01 | -2.34 |
| Manganese | 1 | 0.03 | -1.52 |
| Silver | 0.026 | 0.0008 | -1.51 |
| Arsenic | 0.003 | 0.0002 | -1.18 |
| Magnesium | 275 | 74 | -0.57 |
| Chromium (total) | 0.006 | 0.002 | -0.48 |
| Nickel | 0.05 | 0.02 | -0.40 |
| Selenium | 0.002 | 0.001 | -0.30 |
| Zinc | 0.06 | 0.03 | -0.30 |

* pH, eH and temperature not included

## TABLE C-5

## LOG RATIOS OF PRE-1980 VS POST-1980 MINIMUM MSWLF LEACHATE CONCENTRATIONS (continued)

| Constituent | Post-1980 | Pre-1980 | Log Ratio Pre/Post |
|---|---|---|---|
| **INORGANICS (continued)** | | | |
| Vanadium | 0.016 | 0.009 | -0.25 |
| Cadmium | 0.003 | 0.002 | -0.18 |
| Copper | 0.02 | 0.02 | 0.00 |
| Barium | 0.08 | 0.11 | 0.14 |
| Lead | 0.007 | 0.031 | 0.65 |
| SUBTOTAL | 279 | 74 | -- |
| **ORGANICS** | | | |
| p-Cresol | 4,400 | 45.2 | -1.99 |
| Phenol | 378 | 7.3 | -1.71 |
| Toluene | 83 | 5.55 | -1.17 |
| Diethyl Phthalate | 32 | 3 | -1.03 |
| 2-Butanone | 1,300 | 195 | -0.82 |
| 2-Hexanone | 39 | 6 | -0.81 |
| Isophorone | 25 | 4 | -0.80 |
| Methylene Chloride | 6 | 2 | -0.48 |
| Chloromethane | 400 | 170 | -0.37 |
| 4,4-DDT | 0.042 | 0.042 | 0.00 |
| 1,1-Dichloroethane | 4 | 4 | 0.00 |
| Trans-1,2-Dichloroethylene | 6 | 7 | 0.07 |
| Acetone | 8 | 170 | 1.33 |
| SUBTOTAL | 6,681 | 619 | -- |

# TABLE C-6

## DISTRIBUTION OF RATIOS OF MINIMUM MSWLF LEACHATE CONCENTRATIONS VS STANDARDS

| Ratio | Indicator Parameters* | Percent | Other Inorganics | Percent | Organic | Percent | Total | Percent |
|---|---|---|---|---|---|---|---|---|
| $10^{-6}$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| $10^{-5}$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| $10^{-4}$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| $10^{-3}$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| $10^{-2}$ | 0 | 0 | 3 | 21 | 2 | 15 | 5 | 10 |
| $10^{-1}$ | 11 | 52 | 2 | 14 | 5 | 38 | 18 | 38 |
| 1 | 6 | 29 | 8 | 57 | 5 | 38 | 19 | 40 |
| 10 | 4 | 19 | 1 | 7 | 1 | 0 | 6 | 13 |
| $10^{2}$ | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 |
| $10^{3}$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| $10^{4}$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| $10^{5}$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 21 | 100 | 14 | 100 | 13 | 100 | 48 | 100 |

* pH, eH and temperature not included

## TABLE C-7

## LOG RATIOS OF PRE-1980 VS POST-1980 MAXIMUM MSWLF LEACHATE CONCENTRATIONS

| Constituent | Post-1980 | Pre-1980 | Log Ratio Pre/Post |
|---|---|---|---|
| **INORGANICS** | | | |
| **Indicator Parameters** | | | |
| TDS | 31,800 | 16,120 | -0.30 |
| Fluoride | 1.8 | 1.1 | -0.21 |
| Sodium | 2,574 | 1,830 | -0.15 |
| TOC | 14,500 | 13,000 | -0.05 |
| Sulfate | 1,300 | 1,400 | 0.03 |
| Sp. Cond. (umho/cm) | 28,125 | 36,000 | 0.11 |
| Chloride | 2,056 | 2,651 | 0.11 |
| Ammonia | 810 | 1,100 | 0.13 |
| Nitrogen (organic) | 60 | 100 | 0.22 |
| Calcium | 1,060 | 2,100 | 0.30 |
| Nitrate | 0.66 | 1.4 | 0.33 |
| Nitrite | 0.05 | 0.112 | 0.35 |
| Potassium | 471.8 | 1,175 | 0.40 |
| Hardness | 3,000 | 9,380 | 0.50 |
| COD | 16,000 | 50,450 | 0.50 |
| Iron | 695 | 2,280 | 0.52 |
| Nitrogen (Kjeldahl) | 390 | 1,470 | 0.58 |
| BOD | 5,980 | 29,200 | 0.69 |
| Alkalinity | 4,200 | 57,850 | 1.14 |
| Phosphorus | 7.9 | 117.18 | 1.17 |
| TSS | 960 | 17,800 | 1.27 |
| SUBTOTAL | 114,493 | 244,867 | -- |
| **Other Inorganics** | | | |
| Silver | 0.037 | 0.035 | -0.02 |
| Vanadium | 0.024 | 0.024 | 0.00 |
| Nickel | 1.6 | 2.227 | 0.14 |
| Manganese | 50 | 79 | 0.20 |
| Aluminum | 3.4 | 5.8 | 0.23 |
| Magensium | 424 | 780 | 0.26 |
| Barium | 1.7 | 5 | 0.47 |
| Chromium (total) | 0.37 | 1.9 | 0.71 |
| Cadmium | 0.02 | 0.15 | 0.88 |

## TABLE C-7

## LOG RATIOS OF PRE-1980 VS POST-1980 MAXIMUM MSWLF LEACHATE CONCENTRATIONS (continued)

| Constituent | Post-1980 | Pre-1980 | Log Ratio Pre/Post |
|---|---|---|---|
| **INORGANICS (continued)** | | | |
| Lead | 0.15 | 1.6 | 1.03 |
| Arsenic | 0.04 | 0.982 | 1.39 |
| Copper | 0.07 | 2.8 | 1.60 |
| Selenium | 0.002 | 0.09 | 1.65 |
| Zinc | 6.4 | 350 | 1.74 |
| SUBTOTAL | 488 | 1,230 | -- |
| **ORGANICS** | | | |
| p-Cresol | 4,500 | 78 | -1.76 |
| 2-Hexanone | 690 | 12 | -1.76 |
| Acetone | 4,600 | 390 | -1.07 |
| 2-Butanone | 12,000 | 2,800 | -0.63 |
| Chloromethane | 400 | 170 | -0.37 |
| 4,4-DDT | 0.22 | 0.11 | -0.30 |
| Trans-1,2-Dichloroethylene | 677 | 3,130 | 0.66 |
| Phenol | 2,100 | 15,800 | 0.88 |
| Diethyl Phthalate | 32 | 330 | 1.01 |
| Toluene | 1,100 | 13,300 | 1.08 |
| Methylene Chloride | 690 | 57,000 | 1.92 |
| Isophrone | 25 | 16,000 | 2.81 |
| 1,1-Dichloroethane | 4 | 6,300 | 3.20 |
| SUBTOTAL | 26,818 | 115,310 | -- |

# TABLE C-8

## DISTRIBUTION OF RATIOS OF MAXIMUM MSWLF LEACHATE CONCENTRATION VS STANDARDS

| Ratio | Indicator Parameters* | Percent | Other Inorganics | Percent | Organic | Percent | Total | Percent |
|---|---|---|---|---|---|---|---|---|
| $10^{-6}$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| $10^{-5}$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| $10^{-4}$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| $10^{-3}$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| $10^{-2}$ | 0 | 0 | 0 | 0 | 2 | 15 | 2 | 4 |
| $10^{-1}$ | 16 | 76 | 0 | 0 | 2 | 15 | 18 | 39 |
| 1 | 5 | 24 | 7 | 50 | 2 | 15 | 14 | 30 |
| 10 | 0 | 4 | 4 | 29 | 4 | 31 | 8 | 17 |
| $10^{2}$ | 0 | 0 | 3 | 21 | 1 | 8 | 4 | 9 |
| $10^{3}$ | 0 | 0 | 0 | 0 | 2 | 15 | 2 | 4 |
| $10^{4}$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| $10^{5}$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 21 | 100 | 14 | 100 | 13 | 100 | 46 | 100 |

* pH, eH and temperature not included

## TABLE C-9

## LOG RATIOS OF HAZARDOUS WASTE LANDFILL VS POST-1980 MSWLF MEDIAN LEACHATE CONCENTRATIONS

| Constituent | Post-1980 MSWLFs | Hazardous Waste Landfills | Log Ratio Hazardous Waste to Post-1980 MSWLFs |
|---|---|---|---|
| **INORGANICS** | | | |
| **Indicator Parameters** | | | |
| Potassium | 462 | 34 | -1.13 |
| Iron | 230 | 17.2 | -1.13 |
| Calcium | 747 | 72 | -1.02 |
| Alkalinity | 3,900 | 540 | -0.86 |
| Sodium | 817 | 377 | -0.34 |
| Nitrogen (organic) | 45 | 22.8 | -0.30 |
| Hardness | 2,900 | 2,930 | .00 |
| TDS | 7,976 | 10,562 | 0.12 |
| Sulfate | 260 | 399 | 0.19 |
| TOC | 2,860 | 4,624 | 0.21 |
| Sp. Cond. (umho/cm) | 8,800 | 20,000 | 0.36 |
| Chloride | 820 | 2,028 | 0.39 |
| TSS | 554 | 1,470 | 0.42 |
| Ammonia | 299 | 870 | 0.46 |
| COD | 4,300 | 12,600 | 0.47 |
| BOD | 185 | 13,400 | 1.86 |
| SUBTOTAL | 35,162 | 69,953 | -- |
| **Other Inorganics** | | | |
| Magnesium | 412 | 25.4 | -1.21 |
| Silver | 0.036 | 0.02 | -0.26 |
| Manganese | 12.38 | 7.65 | -0.21 |
| Barium | 1 | 0.84 | -0.08 |
| Aluminum | 2.6 | 2 | -0.07 |
| Nickel | 0.185 | 0.272 | 0.17 |
| Zinc | 0.335 | 0.536 | 0.20 |
| Copper | 0.031 | 0.215 | 0.84 |
| Vanadium | 0.0185 | 0.15 | 0.91 |
| Lead | 0.046 | 0.48 | 1.02 |
| Chromium (total) | 0.008 | 0.11 | 1.14 |
| Cadmium | 0.0065 | 0.6 | 1.97 |
| Arsenic | 0.011 | 2.78 | 2.40 |
| Selenium | 0.002 | 6.53 | 3.51 |
| SUBTOTAL | 429 | 48 | -- |

## TABLE C-9

## LOG RATIOS OF HAZARDOUS WASTE LANDFILL VS POST-1980 MSWLF MEDIAN LEACHATE CONCENTRATIONS (continued)

| Constituent | Post-1980 MSWLF | Hazardous Waste Landfill | Log Ratio Hazardous Waste to Post-1980 MSWLFs |
|---|---|---|---|
| **ORGANICS** | | | |
| Phenol | 1,700 | 1.09 | -3.19 |
| Chloromethane | 400 | 340 | -0.07 |
| Toluene | 590 | 880 | 0.17 |
| Diethyl Phthalate | 32 | 83 | 0.41 |
| Isophorone | 25 | 208 | 0.92 |
| Acetone | 4,000 | 60,000 | 1.18 |
| Methylene Chloride | 120 | 7,715 | 1.81 |
| 1,1-Dichloroethane | 4 | 594 | 2.17 |
| Trans-1,2-Dichloroethylene | 14 | 2,350 | 2.22 |
| SUBTOTAL | 6,885 | 72,171 | -- |

## TABLE C-10

## DISTRIBUTION OF RATIOS OF HAZARDOUS WASTE LANDFILL VS POST-1980 MSWLF MEDIAN LEACHATE CONCENTRATIONS

| Ratio | Indicator Parameters* | Percent | Inorganic | Percent | Organic | Percent | Total | Percent |
|---|---|---|---|---|---|---|---|---|
| $10^{-6}$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| $10^{-5}$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| $10^{-4}$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| $10^{-3}$ | 0 | 0 | 0 | 0 | 1 | 11 | 1 | 3 |
| $10^{-2}$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| $10^{-1}$ | 4 | 25 | 1 | 7 | 0 | 0 | 5 | 13 |
| 1 | 11 | 69 | 6 | 43 | 3 | 33 | 20 | 51 |
| 10 | 0 | 0 | 4 | 29 | 2 | 22 | 6 | 15 |
| $10^{2}$ | 1 | 6 | 2 | 14 | 3 | 33 | 6 | 15 |
| $10^{3}$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| $10^{4}$ | 0 | 0 | 1 | 7 | 0 | 0 | 1 | 3 |
| $10^{5}$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 16 | 100 | 14 | 100 | 9 | 100 | 39 | 100 |

* pH, eH and temperature not included

# TABLE C-11

## LOG RATIOS OF MEDIAN MSWLF LEACHATE CONCENTRATION VS STANDARDS

| Constituent | Standard | Median | Log Ratio Median to Standard |
|---|---|---|---|
| **INORGANICS** | | | |
| **Indicator Parameters** | | | |
| Nitrate | 10.00 | 0.22 | -1.66 |
| Cyanide | 0.70 | 0.02 | -1.54 |
| Nickel | 0.70 | 0.17 | -0.61 |
| **Other Inorganics** | | | |
| Arsenic | 0.05 | 0.01 | -0.57 |
| Mercury | 0.002 | 0.0006 | -0.52 |
| Silver | 0.05 | 0.02 | -0.40 |
| Barium | 1.00 | 0.53 | -0.28 |
| Selenium | 0.01 | 0.01 | -0.22 |
| Chromium (total) | 0.05 | 0.06 | 0.08 |
| Lead | 0.05 | 0.06 | 0.10 |
| Cadmium | 0.01 | 0.01 | 0.13 |
| Zinc | 0.11 | 0.68 | 0.79 |
| Thallium | 0.01 | 0.08 | 0.79 |
| Antimony | 0.01 | 0.07 | 0.82 |
| TDS | 250 | 4,890 | 1.29 |
| Copper | 0.001 | 0.05 | 1.65 |
| Manganese | 0.05 | 3.70 | 1.87 |
| Iron | 0.30 | 95.15 | 2.50 |
| Beryllium | 7.1E-06 | 0.0048 | 2.83 |
| **ORGANICS** | | | |
| Dimethyl Phthalate | 313,000 | 42.5 | -3.87 |
| 1,2-Dichloropropane | 5,700 | 9 | -2.80 |
| Diethyl Phthalate | 30,000 | 83 | -2.56 |
| Trichloro Fluoromethane | 10,000 | 34 | -2.47 |
| Lindane | 4 | 0.02 | -2.30 |
| Chlorobenzene | 1,000 | 7 | -2.15 |
| 2,4-Dimethyl Phenol | 2,120 | 19 | -2.05 |
| Di-N-Butyl Phthalate | 4,000 | 49 | -1.91 |
| Isophorone | 5,200 | 76 | -1.84 |
| Naphthalene | 620 | 12 | -1.71 |
| 1,2-Dichlorobenzene | 400 | 11.5 | -1.54 |
| Dichloro Difluoromethane | 7,000 | 274 | -1.41 |

# TABLE C-11

# LOG RATIOS OF MEDIAN MSWLF LEACHATE CONCENTRATIONS VS STANDARDS (continued)

| Constituent | Standard | Median | Log Ratio Median To Standard |
|---|---|---|---|
| **ORGANICS (continued)** | | | |
| Toluene | 10,000 | 413 | -1.38 |
| Ethyl Benzene | 1,400 | 58 | -1.38 |
| Pentachlorophenol | 1,000 | 45 | -1.35 |
| 1,4-Dichlorobenzene | 75 | 7 | -1.03 |
| 4-Nitrophenol | 150 | 17 | -0.95 |
| Bis (2-Ethyhexyl) Phthalate | 700 | 80 | -0.94 |
| Toxaphene | 5 | 1 | -0.70 |
| Phenol | 1000 | 378 | -0.42 |
| 1,1,1-Trichloroethane | 200 | 86 | -0.37 |
| 2-Butanone | 2000 | 1550 | -0.11 |
| 4,4-DDT | 0.1 | 0.105 | 0.02 |
| 1,2,3-Trichloropropane | 200 | 230 | 0.06 |
| p-Cresol | 2000 | 2305 | 0.06 |
| Endrin | 0.2 | 0.25 | 0.10 |
| 2,4,-D | 100 | 130 | 0.11 |
| 1,2-Dichloroethane | 5 | 10 | 0.30 |
| Nitrobenzene | 20 | 40 | 0.30 |
| Chloroform | 5.7 | 29 | 0.71 |
| Benzene | 5 | 37 | 0.87 |
| Tetrachloroethylene | 6.9 | 55.4 | 0.90 |
| Trichloroethylene | 5 | 43 | 0.93 |
| Acrolein | 21 | 270 | 1.11 |
| Bromomethane | 10 | 170 | 1.23 |
| Vinyl Chloride | 2 | 40.2 | 1.30 |
| Carbon Tetrachloride | 5 | 202 | 1.61 |
| 1,1,2-Trichloroethane | 6.1 | 426 | 1.84 |
| Methylene Chloride | 4.7 | 440 | 1.97 |
| 1,1,2,2-Tetrachloroethane | 1.75 | 210 | 2.08 |
| 1,3-Dichloropropene | 0.19 | 24 | 2.10 |
| Bis (Chloromethyl) Ether | 0.0037 | 2581 | 4.83 |

## TABLE C-12

## DISTRIBUTION OF RATIOS OF MEDIAN MSWLF LEACHATE CONCENTRATIONS VS STANDARDS

| Ratio | Indicator Parameters | Percent | Other Inorganics | Percent | Organic | Percent |
|---|---|---|---|---|---|---|
| $10^{-6}$ | 0 | 0 | 0 | 0 | 0 | 0 |
| $10^{-5}$ | 0 | 0 | 0 | 0 | 0 | 0 |
| $10^{-4}$ | 0 | 0 | 1 | 2 | 1 | 2 |
| $10^{-3}$ | 0 | 0 | 2 | 5 | 2 | 3 |
| $10^{-2}$ | 2 | 11 | 8 | 19 | 10 | 16 |
| $10^{-1}$ | 3 | 16 | 8 | 19 | 11 | 18 |
| 1 | 6 | 32 | 10 | 24 | 16 | 26 |
| 10 | 4 | 21 | 7 | 17 | 11 | 18 |
| $10^{2}$ | 2 | 11 | 5 | 12 | 7 | 11 |
| $10^{3}$ | 2 | 11 | 0 | 0 | 2 | 3 |
| $10^{4}$ | 0 | 0 | 0 | 0 | 0 | 0 |
| $10^{5}$ | 0 | 0 | 1 | 2 | 1 | 2 |
| TOTAL | 19 | 100 | 42 | 100 | 61 | 100 |

## TABLE C-13

## COMPARISON OF AVERAGE MSWLF LEACHATE CONCENTRATIONS TO STANDARDS

| Constituent | Average | Standard | Ratio Average to Standard | Ratio Standard to Average |
|---|---|---|---|---|
| **INORGANICS** | | | | |
| **Indicator Parameters*** | | | | |
| Iron | 221 | 1,000 a | 0.2 | 4.5 |
| Nitrate | 1.88 | 10 a | 0.2 | 5.3 |
| Total Dissolved Solids | 5,691 | 20 a | 284 | 0.004 |
| **Other Inorganics** | | | | |
| Antimony | 4.52 | 0.01 c | 452 | 0.602 |
| Arsenic | 0.0418 | 0.05 b | 0.8 | 1.2 |
| Barium | 0.8526 | 1.0 b | 0.9 | 1.2 |
| Beryllium | 0.0056 | 0.2 c | 0.028 | 36 |
| Cadmium | 0.022 | 0.01 b | 2.2 | 0.5 |
| Chromium (total) | 0.1754 | 0.05 b | 3.5 | 0.3 |
| Copper | 0.1679 | 0.012 c<br>0.018 a | 14<br>9.3 | 0.1<br>0.1 |
| Cyanide | 0.0634 | 0.7 c | 0.09 | 11.0 |
| Lead | 0.1616 | 0.05 b | 3.2 | 0.3 |
| Manganese | 9.59 | 0.05 a | 192 | 0.005 |
| Mercury | 0.0020 | 0.002 b | 1 | 1 |
| Nickel | 0.3255 | 0.07 c | 4.6 | 0.2 |
| Selenium | 0.0119 | 0.01 b | 1.2 | 0.8 |
| Silver | 0.0208 | 0.05 b | 0.4 | 2.4 |
| Thallium | 0.1753 | 0.04 a | 4.4 | 0.2 |
| Zinc | 8.32 | 0.110 a | 76 | 0.01 |
| **ORGANICS** | | | | |
| Acrolein | 270 | 21 a | 12.8 | 0.08 |
| Benzene | 221 | 5 c | 44 | 0.02 |
| Bromomethane | 170 | 10 c | 17 | 0.06 |
| 2-Butanone (Methyl Ethyl Ketone) | 4,151 | 2,000 a | 2.1 | 0.5 |
| Carbon Tetrachloride | 202 | 5 c | 40 | 0.03 |
| Chlorobenzene | 128 | 1,000 c | 0.1 | 7.8 |
| Chloroform | 195 | 5.7 d | 34 | 0.03 |
| Bis(Chloromethyl) Ether | 250 | 0.0037 d | 67,568 | 0.00002 |
| p-Cresol | 2,394 | 2,000 c | 1.2 | 0.8 |
| 2,4-D | 129 | 100 c | 1.3 | 0.8 |

* pH, eH and temperature not included
a Water Quality Criteria
b National Interim Primary or Secondary Drinking Water Standard
c Systematic Toxicant
d Carcinogen

## TABLE C-13

## COMPARISON OF AVERAGE MSWLF LEACHATE CONCENTRATIONS TO STANDARDS (continued)

| Constituent | Average | Standard | Ratio Average to Standard | Ratio Standard to Average |
|---|---|---|---|---|
| **ORGANICS (continued)** | | | | |
| 4,4-DDT | 0.1031 | 0.1 d | 1.03 | 1.0 |
| Di-N-Butyl Phthalate | 70.2 | 4,000 c | 0.02 | 5.7 |
| 1,2-Dichlorobenzene | 11.8 | 763 a | 0.02 | 65 |
| 1,4-Dichlorobenzene | 13.2 | 75 c | 0.2 | 5.7 |
| Dichlorodifluoromethane | 237 | 7,000 c | 0.03 | 30 |
| 1,1-Dichloroethane | 1,715 | 7 b<br>0.58 d | 245<br>2,957 | 0.004<br>0.0003 |
| 1,2-Dichloroethane | 1841 | 5 c | 368 | 0.003 |
| 1,2-Dichloropropane | 66.7 | 5,700 a | 0.01 | 86 |
| 1,3-Dichloropropene | 24 | 0.19 d | 126 | 0.008 |
| Diethyl Phthalate | 118 | 30,000 c | 0.004 | 254 |
| 2,4-Dimethyl Phenol | 19 | 2,120 a | 0.009 | 112 |
| Dimethyl Phthalate | 42.5 | 313,000 a | 0.0001 | 7365 |
| Endrin | 16.8 | 0.2 c | 84 | 0.01 |
| Ethyl benzene | 274 | 1,400 a | 0.2 | 5.1 |
| Bis (2-Ethylhexyl) Phthalate | 184 | 70 c | 2.6 | 0.4 |
| Isophorone | 1,168 | 5,200 a | 0.2 | 4.5 |
| Lindane | 0.020 | 4 c | 0.005 | 200 |
| Methylene Chloride (Dichlormethane) | 5,352 | 4.7 d | 114 | 0.0009 |
| Naphthalene | 32.4 | 620 a | 0.05 | 19 |
| Nitrobenzene | 54.7 | 20 c | 2.7 | 0.4 |
| 4-Nitrophenol | 17 | 150 a | 0.1 | 8.8 |
| Pentachlorophenol | 173 | 1,000 c | 0.2 | 5.8 |
| Phenol | 2,456 | 1,000 c | 2.4 | 0.4 |
| 1,1,2,2-Tetrachloroethane | 210 | 1.75 d | 120 | 0.008 |
| Tetrachloroethylene | 132 | 6.9 d | 19.1 | 0.05 |
| Toluene | 1,016 | 10,000 c | 0.1 | 9.8 |
| Toxaphene | 1 | 5 b | 0.2 | 5.0 |
| 1,1,1-Trichloroethane | 887 | 200 b<br>3,000 c | 4.4<br>0.3 | 0.2<br>3.4 |
| 1,1,2-Trichloroethane | 378 | 6.1 d | 62 | 0.02 |
| Trichloroethytlene | 187 | 5 b<br>3.2 c | 37<br>58 | 0.03<br>0.02 |
| Trichlorofluoromethane | 56.1 | 10,000 c | 0.006 | 178 |
| 1,2,3-Trichloropropane | 230 | 20 c | 11.5 | 0.09 |
| Vinyl Chloride | 36.1 | 2 b | 18.0 | 0.06 |

## TABLE C-14

## NUMBER OF PRE-1980 MSWLF LEACHATE CONSTITUENTS EXCEEDING STANDARDS, BY SITE

| Site I.D. Number | Number of Samples | | Number of Constituents | | | Number of Constituents Exceeding Standards | | | Number of Constituents Exceeding 1000 x Standards | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inorg | Org | Inorg | Org | Total | Inorg | Org | Total | Inorg | Org | Total |
| 2 | 3 | 3 | 13 | 38 | 51 | 4 | 2 | 6 | 0 | 0 | 0 |
| 14 | 3 | - | 19 | - | 19 | 4 | - | 4 | 0 | - | 0 |
| 19 | - | 2 | - | 36 | 36 | - | 1 | 1 | - | 0 | 0 |
| 20 | - | 3 | - | 38 | 38 | - | 3 | 3 | - | 0 | 0 |
| 22 | - | 8 | - | 36 | 36 | - | 6 | 6 | - | 0 | 0 |
| 23 | - | 6 | - | 34 | 34 | - | 6 | 6 | - | 1 | 1 |
| 24 | - | 1 | - | 3 | 3 | - | 2 | 2 | - | 0 | 0 |
| 30 | - | 1 | - | 36 | 36 | - | 9 | 9 | - | 0 | 0 |
| 31 | - | 1 | - | 36 | 36 | - | 3 | 3 | - | 0 | 0 |
| 32 | - | 1 | - | 37 | 37 | - | 4 | 4 | - | 0 | 0 |
| 38 | - | 1 | - | 37 | 37 | - | 5 | 5 | - | 0 | 0 |
| 48 | 3 | - | 14 | - | 14 | 5 | - | 5 | 0 | - | 0 |
| 53 | - | 1 | - | 2 | 2 | - | 2 | 2 | - | 0 | 0 |
| 61 | 3 | 1 | 18 | 40 | 58 | 6 | 4 | 10 | 0 | 0 | 0 |
| 62 | 4 | 2 | 7 | 31 | 38 | 2 | 4 | 6 | 0 | 1 | 1 |
| 63 | 6 | 6 | 19 | 23 | 42 | 9 | 6 | 15 | 2 | 0 | 2 |
| 64 | 4 | 4 | 10 | 19 | 29 | 3 | 2 | 5 | 0 | 0 | 0 |
| 65 | 30 | 30 | 14 | 32 | 46 | 19 | 4 | 23 | 3 | 0 | 3 |
| 68 | 4 | 4 | 12 | - | 12 | 3 | - | 3 | 0 | - | 0 |
| 69 | 1 | 1 | 11 | 18 | 29 | 4 | 1 | 5 | 0 | 0 | 0 |
| 71 | 1 | 1 | 11 | - | 11 | 2 | - | 2 | 0 | - | 0 |
| 72 | 2 | 1 | 10 | 4 | 14 | 5 | 0 | 5 | 0 | 0 | 0 |
| 73 | 11 | 6 | 19 | 38 | 57 | 7 | 3 | 10 | 1 | 0 | 1 |
| 75 | - | 4 | - | 36 | 36 | - | 1 | 1 | - | 0 | 0 |
| 77 | 1 | 1 | 16 | 37 | 53 | 5 | 1 | 6 | 0 | 0 | 0 |
| 78 | 10 | 10 | 18 | 36 | 54 | 9 | 1 | 10 | 0 | 0 | 0 |
| Totals | 86 | 99 | 211 | 647 | 858 | 87 | 70 | 157 | 6 | 2 | 8 |

## TABLE C-15

## NUMBER OF POST-1980 MSWLF LEACHATE CONSTITUENTS EXCEEDING STANDARDS, BY SITE

| Site I.D Number | Number of Samples | | Number of Constituents | | | Numberof Constituents Exceeding Standards | | | Number of Constituents Exceeding 1000 x Standards | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inorg | Org | Inorg | Org | Total | Inorg | Org | Total | Inorg | Org | Total |
| 14 | - | 3 | - | 42 | 42 | - | 1 | 1 | - | 0 | 0 |
| 27 | 4 | 3 | 15 | 39 | 54 | 5 | 5 | 10 | 0 | 0 | 0 |
| 48 | - | 3 | - | 37 | 37 | - | 4 | 4 | - | 0 | 0 |
| 60 | 8 | 0 | 6 | - | 6 | 5 | - | 5 | 0 | - | 0 |
| 62 | 4 | 4 | 13 | 35 | 48 | 8 | 1 | 9 | 0 | 0 | 0 |
| 67 | 3 | 1 | 10 | 4 | 14 | 4 | 0 | 4 | 1 | 0 | 1 |
| 74 | 3 | 3 | 11 | 4 | 15 | 4 | 0 | 4 | 0 | 0 | 0 |
| 79 | 1 | 0 | 5 | - | 5 | 1 | - | 1 | 0 | - | 0 |
| Totals | 23 | 17 | 60 | 161 | 221 | 27 | 11 | 38 | 1 | 0 | 1 |

## TABLE C-16

## NUMBER OF UNDATED MSWLF CONSTITUENTS EXCEEDING STANDARDS, BY SITE

| Site I.D. Number | Number of Samples | | Number of Constituents | | | Number of Constituents Exceeding Standards | | | Number of Constituents Exceeding 1000 x Standards | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inorg | Org | Inorg | Org | Total | Inorg | Org | Total | Inorg | Org | Total |
| 1 | 1 | 1 | 11 | 2 | 13 | 5 | 0 | 5 | 0 | 0 | 0 |
| 2 | 1 | - | 6 | - | 6 | 2 | - | 2 | 0 | - | 0 |
| 3 | 1 | - | 1 | - | 1 | 1 | - | 1 | 0 | - | 0 |
| 4 | 1 | - | 1 | - | 1 | 1 | - | 1 | 0 | - | 0 |
| 5 | 1 | - | 1 | - | 1 | 1 | - | 1 | 0 | - | 0 |
| 6 | 1 | 1 | 9 | 4 | 13 | 8 | 2 | 10 | 0 | 0 | 0 |
| 7 | 1 | - | 9 | - | 9 | 5 | - | 5 | 0 | - | 0 |
| 8 | - | 1 | - | 11 | 11 | - | 2 | 2 | - | 0 | 0 |
| 9 | - | 1 | - | 10 | 10 | - | 2 | 2 | - | 0 | 0 |
| 10 | - | 1 | - | 14 | 14 | - | 2 | 2 | - | 0 | 0 |
| 11 | 1 | 1 | 2 | 3 | 5 | 1 | 0 | 1 | 0 | 0 | 0 |
| 13 | 1 | - | 5 | - | 5 | 4 | - | 4 | 0 | - | 0 |
| 15 | 1 | - | 1 | - | 1 | 1 | - | 1 | 0 | - | 0 |
| 16 | 1 | - | 4 | - | 4 | 3 | - | 3 | 0 | - | 0 |
| 17 | 1 | 1 | 14 | 26 | 40 | 3 | 0 | 3 | 0 | 0 | 0 |
| 39 | 3 | 3 | 19 | 38 | 57 | 8 | 5 | 13 | 0 | 0 | 0 |
| 40 | - | 1 | - | 6 | 6 | - | 2 | 2 | - | 0 | 0 |
| 41 | 1 | 1 | 15 | 1 | 16 | 7 | 1 | 8 | 0 | 0 | 0 |
| 42 | 1 | 1 | 3 | 7 | 10 | 3 | 3 | 6 | 0 | 0 | 0 |
| 43 | 3 | 3 | 15 | 28 | 43 | 4 | 2 | 6 | 0 | 0 | 0 |
| 44 | 1 | - | 10 | - | 10 | 1 | - | 1 | 0 | - | 0 |
| 45 | 1 | 1 | 9 | 6 | 15 | 5 | 1 | 6 | 0 | 0 | 0 |
| 46 | 1 | 1 | 4 | 1 | 5 | 1 | 0 | 1 | 0 | 0 | 0 |
| 47 | 1 | - | 5 | - | 5 | 5 | - | 5 | 0 | 0 | 0 |
| 49 | 1 | 1 | 13 | 6 | 19 | 6 | 2 | 8 | 0 | 0 | 0 |
| 50 | 1 | 1 | 16 | 1 | 17 | 11 | 1 | 12 | 2 | 0 | 2 |
| 51 | 1 | - | 11 | - | 11 | 5 | - | 5 | 0 | - | 0 |
| 52 | 1 | 1 | 14 | 5 | 19 | 7 | 2 | 9 | 1 | 0 | 1 |
| 55 | - | 1 | - | 1 | 1 | - | 0 | 0 | - | 0 | 0 |
| 56 | - | 1 | - | 10 | 10 | - | 5 | 5 | - | 0 | 0 |
| 57 | - | 1 | - | 3 | 3 | - | 1 | 1 | - | 0 | 0 |
| 58 | - | 1 | - | 8 | 8 | - | 6 | 6 | - | 1 | 1 |
| 59 | - | 1 | - | 1 | 1 | - | 0 | 0 | - | 0 | 0 |
| 66 | 1 | 1 | 6 | 36 | 42 | 3 | 1 | 4 | 0 | 0 | 0 |
| 70 | 1 | 1 | 14 | 25 | 39 | 5 | 3 | 8 | 1 | 0 | 1 |
| 76 | 2 | 2 | 11 | 4 | 15 | 2 | 0 | 2 | 0 | 0 | 0 |
| 80 | 2 | 2 | 10 | 13 | 23 | 5 | 1 | 6 | 0 | 0 | 0 |
| Totals | 34 | 32 | 239 | 270 | 509 | 113 | 44 | 157 | 4 | 1 | 5 |

## TABLE C-17

## NUMBER OF HAZARDOUS WASTE LANDFILL CONSTITUENTS EXCEEDING STANDARDS, BY SITE

| Site I.D. Number | Number of Samples | | Number of Constituents | | | Number of Constituents Exceeding Standards | | | Number of Constituents Exceeding 1000 x Standards | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inorg | Org | Inorg | Org | Total | Inorg | Org | Total | Inorg | Org | Total |
| 1 | 6 | - | 10 | - | 10 | 9 | - | 9 | 4 | - | 4 |
| 2 | 1 | - | 5 | - | 5 | 5 | - | 5 | 0 | - | 0 |
| 3 | 4 | 1 | 11 | 3 | 14 | 10 | 2 | 12 | 0 | 0 | 0 |
| 4 | 2 | 2 | 14 | 4 | 18 | 8 | 2 | 10 | 0 | 0 | 0 |
| 5 | 2 | 2 | 12 | 21 | 33 | 6 | 12 | 18 | 0 | 1 | 1 |
| 7 | 5 | - | 5 | - | 5 | 4 | - | 4 | 0 | - | 0 |
| 8 | 1 | 1 | 12 | 12 | 24 | 8 | 2 | 10 | 1 | 0 | 1 |
| 9 | 1 | 1 | 12 | 2 | 14 | 6 | 0 | 6 | 1 | 0 | 1 |
| 10 | 4 | - | 2 | 2 | 4 | 2 | 1 | 3 | 1 | 0 | 1 |
| 11 | - | 7 | - | 4 | 4 | - | 0 | 0 | - | 0 | 0 |
| Totals | 26 | 14 | 83 | 48 | 131 | 58 | 19 | 77 | 7 | 1 | 8 |